

RUSSIAN JOURNAL OF AGRICULTURAL AND SOCIO- ECONOMIC SCIENCES

ISSN 2226-1184



#8(92)

August 2019

"RJOAS is an interdisciplinary open access journal of agriculture and socio-economic studies. The journal aims at establishing a bridge between theory and practice in the fields of agriculture and socio-economic research..."

www.rjoas.com

OPEN  **ACCESS**

TABLE OF CONTENT

Yudha F., Raharja S.D., Rizal M.

SIMULATING A NEW BUSINESS MODEL: A DYNAMIC BUSINESS MODEL APPROACH STUDY ON PT. AMM POULTRY PARTNERSHIP COMPANY; pp. 3-9

Crossref DOI: 10.18551/rjoas.2019-08.01

Tetik A.H., Prasetyo E., Lukiwati D.R.

ANALYSIS OF ECONOMIC EFFICIENCY FOR USE OF PRODUCTION AND INCOME FACTORS IN LOCAL CORNSELF IN WEWIKU AND MALAKA DISTRICTS OF NUSA TENGGARA TIMUR PROVINCE, INDONESIA; pp. 10-18

Crossref DOI: 10.18551/rjoas.2019-08.02

Raditya B., Yuliati L.N., Krisnatuti D.

ANALYSIS OF THE EFFECT OF BRAND IMAGE, PRODUCT QUALITY AND AFTER-SALES SERVICE ON REPURCHASE DECISION OF SAMSUNG SMARTPHONES; pp. 19-32

Crossref DOI: 10.18551/rjoas.2019-08.03

Nugroho D.W.

THE EFFECT OF PERCEIVED ORGANIZATIONAL SUPPORT AND TRANSFORMATIONAL LEADERSHIP STYLE ON EMPLOYEE PERFORMANCE OF SURABAYA MUNICIPALITY'S EDUCATION SERVICE OFFICE; pp. 33-41

Crossref DOI: 10.18551/rjoas.2019-08.04

Tiwery W.Y., Patty F.N.

PRESENCE OF WOMEN IN CONFLICT RESOLUTION EFFORTS IN AMBON, SOUTHWEST MALUKU REGENCY OF INDONESIA; pp. 42-45

Crossref DOI: 10.18551/rjoas.2019-08.05

Yulianingsih R., Syah T.Y.R., Anindita R.

HOW PACKAGING, PRODUCT QUALITY AND PROMOTION AFFECT THE PURCHASE INTENTION? pp. 46-55

Crossref DOI: 10.18551/rjoas.2019-08.06

Wibowo H.E., Mulyati H., Saptono I.T.

IMPROVING CREDIT SCORING MODEL OF MORTGAGE FINANCING WITH SMOTE METHODS IN SHARIA BANKING; pp. 56-67

Crossref DOI: 10.18551/rjoas.2019-08.07

Kriyantono R.

APOLOGIA CORRUPTION VS PUNITIVE RESPONSES: A CONTENT ANALYSIS AND AN EXPERIMENTAL STUDY ON APOLOGIA STRATEGY OF THE SUSPECTED CORRUPTORS AND THE PUBLIC RESPONSES; pp. 68-77

Crossref DOI: 10.18551/rjoas.2019-08.08

Mulyanti S.Y., Anggraeni L., Sasongko H.

FINANCIAL DISTRESS, MACROECONOMIC FACTORS AND ITS EFFECT TOWARDS STOCK PRICE IN MINING COMPANIES OPERATING IN THE COAL SUBSECTOR REGISTERED IN INDONESIA STOCK EXCHANGE FOR PERIOD OF 2013-2017; pp. 78-88

Crossref DOI: 10.18551/rjoas.2019-08.09

Putra I K.I.S.D., Setiawan P.Y.

REFORMULATION OF BUSINESS STRATEGY TO INCREASE CREDIT GUARANTEE IN PT. JAMKRIDA BALI MANDARA; pp. 89-105

Crossref DOI: 10.18551/rjoas.2019-08.10

Nafisah L., Muhsin A., Siswanti Y.

SETTLEMENT OF THE COMMUNITY'S RESIDENTIAL LAND CONFLICTS; pp. 106-111

Crossref DOI: 10.18551/rjoas.2019-08.11

Majid A.

ANALYSIS OF THE SOCIO-ECONOMIC CHARACTERISTICS OF FISH TRADERS IN BASE OEBA FISH LANDING AT KUPANG CITY, INDONESIA; pp. 112-115

Crossref DOI: 10.18551/rjoas.2019-08.12

Hardana A.E., Pariasa I.I., Riyanto S., Pratiwi D.E.

IMPLEMENTATION OF FARM MANAGEMENT AND FINANCIAL FEASIBILITY EVALUATION OF SHALLOT (*ALLIUM ASCALONICUM* L.); pp. 116-121

Crossref DOI: 10.18551/rjoas.2019-08.13

Sastrawan K.A., Utama M.S., Yasa I G.W.M., Purbadharmaja I.B.P.

DETERMINANTS OF PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES MOVING IN THE PROCUREMENT OF GOVERNMENT GOODS AND SERVICES IN BALI PROVINCE, INDONESIA; pp. 122-141

Crossref DOI: 10.18551/rjoas.2019-08.14

Karani L.M., Syah T.Y.R., Anindita R.

INFLUENCE OF SERVICE QUALITY AND CUSTOMER SATISFACTION ON CUSTOMER LOYALTY IN RESTAURANTS OF THE TANGERANG AREA; pp. 142-147

Crossref DOI: 10.18551/rjoas.2019-08.15

Pariasa I.I., Hardana A.E., Koestiono D.

IS DELAY SELLING SYSTEM GOOD FOR INDONESIA'S AGRIBUSINESS MANAGEMENT? pp. 148-151

Crossref DOI: 10.18551/rjoas.2019-08.16

Damayanti D., Syah T.Y.R., Sunaryanto K.

DEVELOPMENT OF LEAN CONSUMPTION CONCEPT IN IMPROVING PROCUREMENT PROCESS OF NEW ITEM AND PROJECT PROCUREMENT; pp. 152-166

Crossref DOI: 10.18551/rjoas.2019-08.17

Hamid W., Rommy N., Abadi S.Y., Nur N., Zaid S.

THE DEVELOPMENT OF INSTITUTIONAL MODEL THROUGH THE IMPLEMENTATION OF BALANCE SCORECARD METHOD TO IMPROVE THE PERFORMANCE OF SEAWEED AGRIBUSINESS INSTITUTION;

pp. 167-176

Crossref DOI: 10.18551/rjoas.2019-08.18

Sari N.A., Syahrudin

DEINDUSTRIALIZATION AMONG ASEAN COUNTRIES AND RELATED AFFECTING FACTORS; pp. 177-186

Crossref DOI: 10.18551/rjoas.2019-08.19

Nurjanah D.A.D., Fitri A.D.P., Wijayanto D.

A TECHNICAL STUDY OF MODIFIED GILLNET IN KENDAL REGENCY WATERS; pp. 187-196

Crossref DOI: 10.18551/rjoas.2019-08.20

Hidayat S.I., Indah P.N., Nurhayati T., Harya G.I., Hendrarini H.

SATISFACTION OF THE FARMING COMMUNITY TOWARDS THE PERFORMANCE OF AGRICULTURAL EXTENSION SERVICE: A CASE STUDY IN BENJENG SUBDISTRICT OF GRESIK REGENCY, INDONESIA; pp. 197-203

Crossref DOI: 10.18551/rjoas.2019-08.21

Muldi A., Sumardjo, Kinseng R.A., Sugihen B.G.

THE ROLE OF COMMUNICATION IN RESOURCE AND ENVIRONMENTAL CONFLICTS IN COASTAL COMMUNITIES OF BANTEN BAY; pp. 204-213

Crossref DOI: 10.18551/rjoas.2019-08.22

Poetri M.O.

THE EFFECT OF EXPERIENTIAL MARKETING AND PSYCHOLOGICAL PRICING ON REPURCHASE INTENTION OF CUSTOMERS IN STORE X; pp. 214-218

Crossref DOI: 10.18551/rjoas.2019-08.23

Purwasono G.R.

MILLENNIALS IN THE WORKPLACE: THE EFFECT OF PSYCHOLOGICAL CAPITAL ON WORK ENGAGEMENT WITH PERCEIVED ORGANIZATIONAL SUPPORT; pp. 219-226

Crossref DOI: 10.18551/rjoas.2019-08.24

Utomo P., Baga L.M., Djohar S.

STRATEGY FOR PERFORMANCE IMPROVEMENT AT BUILDING DIVISION OF PT. HUTAMA KARYA (PERSERO) IN CONDITIONS OF CONSTRUCTION BUILDING BUSINESS COMPETITION; pp. 227-234

Crossref DOI: 10.18551/rjoas.2019-08.25

Agustina M.D.P., Budhi M.K.S., Utama M.S., Yasa I G.W.M.

THE INFLUENCE OF GOVERNMENT ROLE, COMMUNITY PARTICIPATION AND SOCIAL CAPITAL ON THE QUALITY OF DESTINATION AND COMMUNITY WELFARE IN THE TOURISM VILLAGE OF BADUNG REGENCY PROVINCE OF BALI; pp. 235-251

Crossref DOI: 10.18551/rjoas.2019-08.26

Noviandri P.D.

THE EFFECT OF INDIVIDUAL AND SITUATIONAL FACTORS ON CAREER SATISFACTION AND AFFECTIVE COMMITMENT AMONG GENERATION Y EMPLOYEES: A CASE STUDY OF TELECOMMUNICATION COMPANY IN INDONESIA; pp. 252-259

Crossref DOI: 10.18551/rjoas.2019-08.27

Tope P.

ANALYSIS OF INCOME GROWTH AND EVALUATION OF ECONOMIC DEVELOPMENT IN CENTRAL SULAWESI, INDONESIA; pp. 260-264

Crossref DOI: 10.18551/rjoas.2019-08.28

Zahra F., Alexandri M.B., Purnomo M., Arifianti R., Muftiadi A., Herawati T., Nugroho D., Ruslan B.

USER BEHAVIOUR INTENTION USING UTAUT2 MODEL: A SYSTEMATIC LITERATURE REVIEW; pp. 265-273

Crossref DOI: 10.18551/rjoas.2019-08.29

Bhandari K., Poudel A., Sharma S., Kandel B.P., Upadhyay K.

GENETIC VARIABILITY, CORRELATION AND PATH ANALYSIS OF RICE GENOTYPES IN RAINFED CONDITION AT LAMJUNG, NEPAL; pp. 274-280

Crossref DOI: 10.18551/rjoas.2019-08.30

Herpriyana M., Suwarto, Anantanyu S.

ANALYSIS OF DETERMINANT PERFORMANCE OF AGRICULTURAL EXTENSION AGENTS IN LEBAK DISTRICT, BANTEN PROVINCE OF INDONESIA; pp. 281-286
Crossref DOI: 10.18551/rjoas.2019-08.31

Hayati N., Sudiarso, Prijono S., Aini N.

THE EFFECT OF COMPOST COMBINED WITH PHOSPHATE SOLUBILIZING BACTERIA AND NITROGEN-FIXING BACTERIA FOR INCREASING THE GROWTH AND YIELD OF CHILI PLANTS; pp. 287-292
Crossref DOI: 10.18551/rjoas.2019-08.32

Yatsentyuk S.P., Lazareva E.A., Gorbacheva N.S., Krasnikova M.S., Kozlova A.D., Laishevtcev A.I.

PCR DETECTION OF COXIELLA BURNETII FROM BULL SEMEN SAMPLES USED FOR ARTIFICIAL INSEMINATION; pp. 293-295
Crossref DOI: 10.18551/rjoas.2019-08.33

Setiasih, Wahjuningsih S., Winarsih S., Soetanto H.

THE EFFECTS OF ADDING MORINGA OLEIFERA LEAVES EXTRACT ON RABBIT DOES' MILK PRODUCTION AND MAMMARY GLAND HISTOLOGY; pp. 296-304
Crossref DOI: 10.18551/rjoas.2019-08.34

Haryadi L., Suprayitno E., Aulanni'am A., Amin M., Hariati A.M.

IDENTIFICATION OF ANISAKID NEMATODE L3 LARVAE INFECTION ON SKIPJACK TUNA (KATSUWONUS PELAMIS L.) FROM KUPANG WATERS, EAST NUSA TENGGARA OF INDONESIA; pp. 305-312
Crossref DOI: 10.18551/rjoas.2019-08.35

DOI 10.18551/rjoas.2019-08.01

SIMULATING A NEW BUSINESS MODEL: A DYNAMIC BUSINESS MODEL APPROACH STUDY ON PT. AMM POULTRY PARTNERSHIP COMPANY

Yudha Fendria*, Raharja Sam'un Djaja, Rizal Muhammad

Department of Business Administration, University of Padjadjaran, Bandung, Indonesia

*E-mail: fendria.yudha@unpad.ac.id

ABSTRACT

Recent study show that the reconfiguration and reconstruction of new business models begin with the demands of changes or the addition of the company's value proposition that offered to consumers. The reconstruction and reconfiguration of the business model are known as business model innovation. In this study, the author conducted a simulation of the configuration of the new business model from PT. The AMM Poultry Partnership Company as a result of changes in the value proposition of the company using the steps to form a new business model includes identifying the new value proposition offered, profit formulation, and key resources and key process business models which are then simulated using a system dynamic approach that adopts the concept of dynamic business models. Based on the results with simulations over a period of 12 months, PT. AMM cumulatively had an increase in financial resources of 120% and an increase in the number of breeders' population of 133928 to 144375 at the end of the simulation period. The optimal configuration of all business model components for the company in the simulation is seen in May - December with a positive cumulative increase. If it reflects the vision of a company that wants balanced profits for both the company and the farmer. The appropriate configuration is in August, September and November of the simulation month. This is because the farmer reaches the maximum profit value and the company has a positive profit.

KEY WORDS

Business model, innovation, dynamic business model, public service.

In Indonesia, the development of the SME production index from 2015 2018 shows 5 sectors with the highest production index from 25 industrial sectors including the Printing and Reproduction of Recording Media, Computers, Electronic and Optical Goods, Chemicals and Chemicals, Food, Paper, and Paper Products. The highest value-added according to data in 2015 is in the food industry sector wherein 2015 the industry at the micro scale has value added of IDR 48,546,016 and on a small scale IDR 30,037,722. This value-added shows the level of profit obtained from the difference between input and production output. The high production index and value-added of the food sector are followed by growth in the supporting sectors including the livestock industry. The commodities with the highest demand in the livestock industry in 2015 and 2016 were in broiler commodities (Indonesian Central Bureau of Statistics, 2019).

PT. Anjawani Mitra Madani (AMM) is one of the companies engaged in broiler cultivation with a partnership system that started its business in 2016 with a legal entity CV (Commanditer Venoscape) and in 2018 switched the status of a business legal entity to a Limited Liability Company (PT) this is a feature of the progress of the AMM itself due to existing market conditions. At the beginning of its establishment, AMM started its business by targeting small breeders with a capacity of 1000-15000 chickens in 1 production period or 21-31 days as its business partners, where farmers with this capacity are not targeted by large poultry partnerships targeting business partners with production capacity chickens more than 30,000 chickens with a closed house system. The new value proposition from PT. AMM is to provide high profits compared to similar companies by offering the highest contract price for chicken purchases in a period and an excess margin percentage bonus if the market price is higher than the price of the purchase contract.

Recent studies show that the process of adding and changing the value proposition demands a change in the overall business model with the aim of increasing the sustainability of its business (Jhonson, 2018). The change in business model is generally known as business model innovation, where the process begins with analyzing the potential and processes of existing business models, simulating them until finally implemented (Geissdoerfer, Savaget, & Evans, *The Cambridge Business Model Innovation Process*, 2017), (Zhao, Bon-Gang Hwang, & Lu, 2018), (Z. Lindgardt., M. Reeves, G. Stalk, & MS Deimler, 2009) (Chesbrough H., *Business model innovation: it's not just about technology anymore*, 2007). In this study, the author will simulate the new business model of PT. AMM with identifying new value propositions, profit formulation, and key resource and key process of business and describe the interrelation in a dynamic system model by adopting the principles of the Dynamic business model from Cosenz and Noto that modeled business component interrelations models in system dynamic (Cosenz & Noto, 2018). System dynamic is recommended for analyzing and modeling business strategies (Forester, 1997), (Serman, 2001), (Davis, Eisenhardt, & Bingham, 2007), (Morecroft, 2015),

LITERATURE REVIEW

Reconstruction process and reconfiguration of business models with the aim of increasing performance, competitive position and sustainability of this business called business model innovation (Geissdoerfer, Savaget, & Evans, *The Cambridge Business Model Innovation Process*, 2017), (Zhao, Bon-Gang Hwang, & Lu, 2018), (Z. Lindgardt., M. Reeves, G. Stalk, & MS Deimler, 2009) (Chesbrough H., *Business model innovation: it's not just about technology anymore*, 2007). The demand for changes in business models occurs when the value proposition offered to consumers' changes or is added to as a trigger for changes in the overall business model components (Jhonson, 2018).

Business models, in general, are representations of organizational processes in producing goods and services offered to get a return in the form of profits or benefits by satisfying consumers based on the ability of their resources. The definition of the majority of business models emphasizes the relationship of part or all aspects including the product, management infrastructure, customer interface, and financial aspects, while others emphasize the implementation of business function strategies. Aspects in the business model environment consist of 7 building blocks including key partners, strategic resources, value propositions and key performance, key processes, customer segments, cost structures, and revenue streams, and then called the business model canvas that describes the relationship of the product, consumers, and networks that connect products and consumers (Geissdoerfer, Vladimirova, & Evans, *Sustainable business innovation model: A review*, 2018), (Bieger & S. Reinhold, 2011), (G. George & AJ Bock, 2011), (L. Massa, C. Tucci, & A. Afuah, *A critical assessment of business model research*, 2017) (Timmers, 1998), (Richardson, 2008) (Masanell & JE Ricart, 2010) "(C. Zott & R. Amit) (M. Geissdoerfer, NMP Bocken, & EJ Hultink, *Design thinking to enhance the sustainable business modeling process*, 2016) Jhonson et al. (Jhonson, 2018) simplifies the components of the business model into a four building box concept among them consists of da value proposition, profit formulation, key process, and key resource. To find out the ideal change of business model for the company, a study is needed to compare the expected conditions with the existing reality, analyze the existing business model potential, determine a new design of the value proposition to offer to consumers, profit formulation, key resources and the right key process (Geissdoerfer, Savaget, & Evans, *The Cambridge Business Model Innovation Process*, 2017) (Jhonson, 2018).

Dynamic business model (DBM) is an interrelation construction of business model components depicted in a dynamic system model that allows adjustment of the framework structure of the company's strategy while DBM itself is depicted in Figure 1. The business model component is modeled interconnected between one another. The construction of DBM itself can be configured according to the strategies used (Cosenz & Noto, 2018).

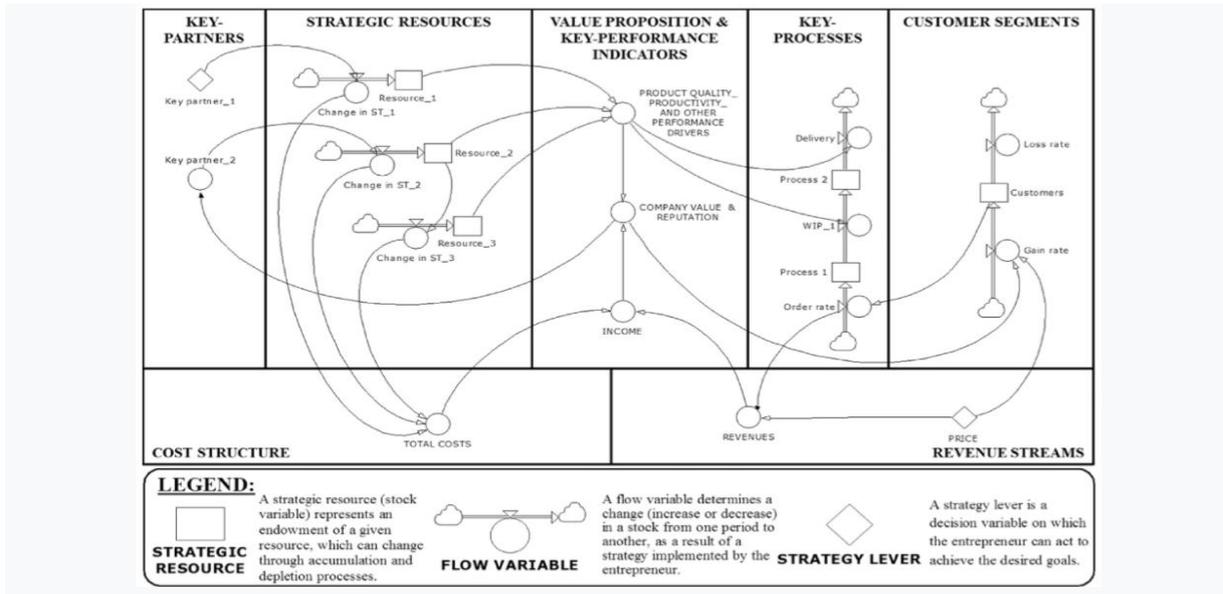


Figure 1 – DBM framework Structure (Cosenz & Noto, 2018)

METHODS OF RESEARCH

The research method used in this study is the mix methods that combine quantitative and qualitative approaches. Mixed research is a research approach that combines qualitative and quantitative research (John. W. Creswell, 2010, p. 5). The research design used is sequential mixed methods with a sequential exploratory approach which is a method of combining data found from one method to another. Where this approach begins with collecting and analyzing qualitative data then followed by the collection and analysis of quantitative data that is built on the initial results of a qualitative approach. Analysis tools used as a system dynamic analysis tool using Powersim software version 10.14.

RESULTS AND DISCUSSION

PT AMM's New Value proposition is offered compared to other poultry partnerships, which are to provide balanced profits for small breeders partners by offering purchase contract prices in accordance with market price fluctuations but above the farmers' production costs so that farmers are not harmed and give positive bonuses from the sale price difference a contract of 30% is expected to increase the trust of farmers and increase the number of farmers' ability to increase their livestock population. The number of breeders production population is assessed by PT. AMM can increase economies of scale so that production costs can be reduced lower so that market price fluctuations do not significantly affect the profits obtained by companies and farmers.

New Profit Formulation PT AMM is formulated by comparing the value of the sale of livestock production facilities (drugs, feed, DOC seeds) and the production of broiler breeders. DOC sales depend on the number of partners and capacity of the enclosure. The margin of the difference between the purchase and sale of sapronak and the difference between the sale of chicken and the purchase of the contract price of the farmer that is accumulated is the total of the company's profits.

New Key resources & Key Process to fulfill the value proposition offered by PT. AMM is to offer the best products for livestock production so that it can produce high production productivity as well as resources that support chicken production activities. The key resources of the company include superior DOC and Feed. The increase in breeder population will increase feed requirements and DOC needs while The process of production activities includes on-farm activities to off-farm on-farm processes including stages of preparation of drums and entry of seeds to the temporary maintenance process off-farm

process is a sorting process based on chicken weight to determine at one year there are 8 cycles of livestock with this because in certain months there is a resting phase of the cage this phase is divided into 2 categories, the first is the resting phase to clean the cage to keep the disease seeds away while the rest phase is the phase for avoiding crop failure because the season is not ideal for raising livestock.

Table 1 – Loops and Dynamics New DBM PT. AMM

Loop	Dynamic
R1 FinancialResources => MarginBonus & BreederRevenue => breederprofit => chickenpopulation =>Chick in => DOC => TotalFeed => FeedRevenue => FeedMargin => financial resources	Increasing the number of breeders population due to the ability of companies to provide margin margin bonuses can increase the amount of DOC, Feed and chicken production needs so that it increases financial
R2 FinancialResources => MarginBonus & BreederRevenue => breederprofit => chickenpopulation =>Chick in => DOC => RevenueDOC =>MarginDOC => financial resources	
R3 FinancialResources => MarginBonus & BreederRevenue => breederprofit => chickenpopulation =>Chick in => DOC companyrevenue (chicken) => ChickenMargin => financial resources	
B1 FinancialResources => MarginBonus & BreederRevenue => breederprofit => chickenpopulation =>Chick in => DOC => TotalFeed => FeedOrder => FeedCost => FinancialResources	Increasing the number of breeders' population due to the strengthening of financial resources and breeders' population causes the cost of feed needs, DOC, the total harvest weight increases and becomes a counterweight to the company's income.
B2 FinancialResources => MarginBonus & BreederRevenue => breederprofit => chickenpopulation =>Chick in => DOC DOCCost => FinancialResources	
B2 FinancialResources => MarginBonus & BreederRevenue => breederprofit => chickenpopulation =>Chick in => MarginBonus => FinancialResources	

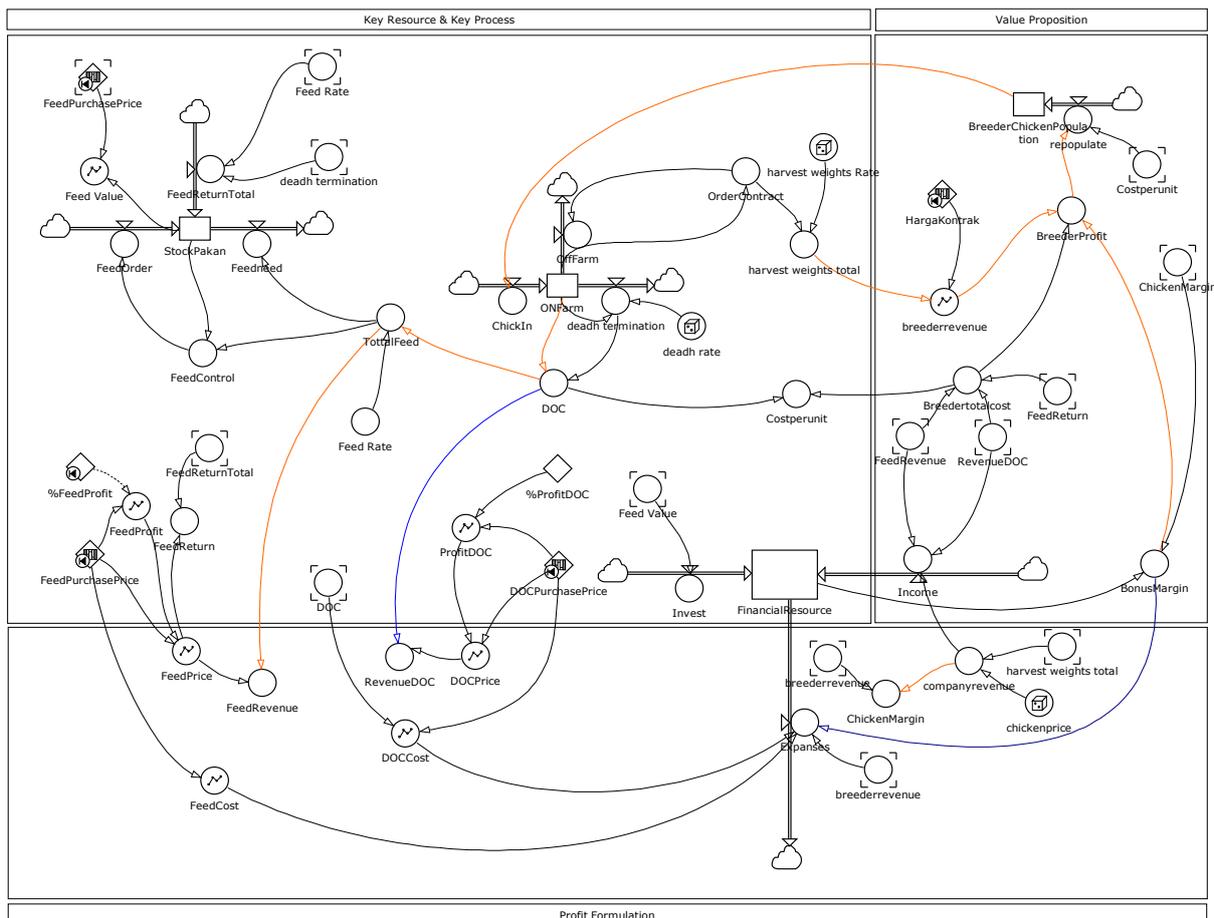


Figure 2 – Dynamic Business model of PT.AMM

In this phase, only the livestock process is not optimized to avoid crop failure so that the livestock population is lowered only to meet local needs. A good relationship with the supplier in the contract purchase agreement allows the purchase of a number of suggestions

for livestock production not limited provided the payment is paid at a certain period accordingly so that the supplier factor is not included in the model.

Based on the data collected, stock and flow can be arranged which can be seen in the stock and flow illustrated in figure 2 that represent dependencies and relationship patterns for each indicator. There are 2 types of loops in a system dynamic, namely reinforcing loop and balancing loop. Reinforcing loops give a positive relationship pattern where if one or more indicators increase, while the loop balancing has a reverse pattern of relationships. There are 3 Reinforcing loops and 3 balancing loops in the model.

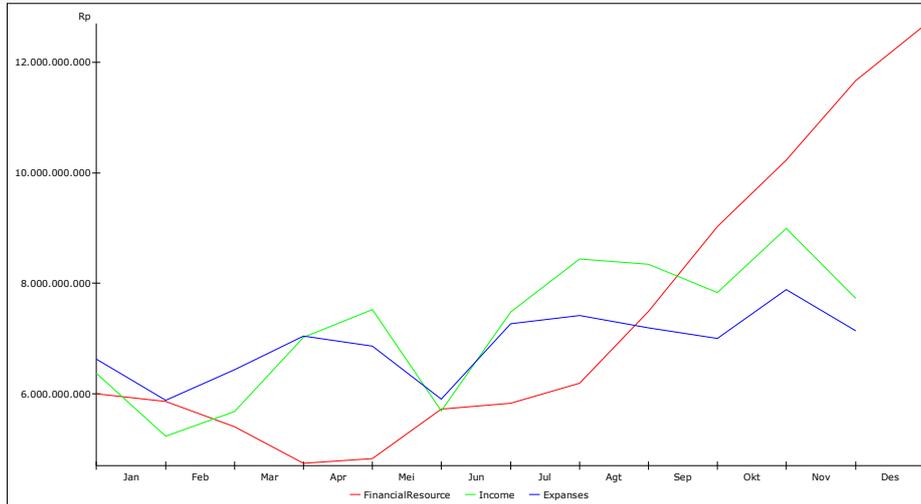


Figure 3 – Financial Resource, Income & Expenses simulation

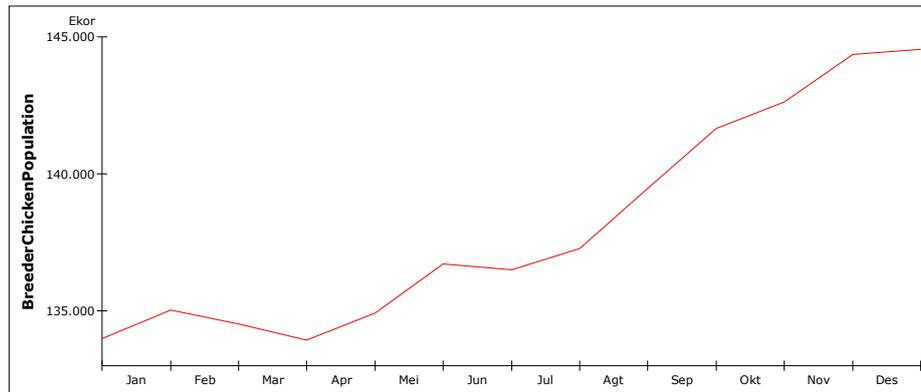


Figure 4 – Breeder Chicken Population Simulation

Table 2 – Income, expense and financial resource simulation

(Rp)					
Time	FinancialResource	Income	Expanses	Breedertotalcost	Invest
01 Jan 2019	6.000.000.000,00	6.413.238.510,42	6.656.777.452,98	3.372.354.396,18	107.985.000,00
01 Feb 2019	5.864.446.057,44	5.310.501.863,74	5.946.742.809,95	3.309.119.467,23	200.805.698,04
01 Mar 2019	5.429.010.809,26	5.818.408.360,43	6.549.762.821,99	3.578.556.336,06	90.408.748,23
01 Apr 2019	4.788.065.095,93	7.192.266.082,54	7.184.463.325,22	3.632.184.178,19	109.907.604,28
01 Mei 2019	4.905.775.457,54	7.702.437.398,77	7.012.607.863,71	3.470.599.899,12	253.458.982,69
01 Jun 2019	5.849.063.975,28	5.827.413.983,22	5.995.750.328,99	3.326.246.350,35	321.128.667,37
01 Jul 2019	6.001.856.296,89	7.678.830.950,07	7.417.289.886,65	3.787.291.815,31	156.685.297,24
01 Agt 2019	6.420.082.657,55	8.634.527.283,25	7.570.332.179,70	3.692.943.981,36	291.126.502,90
01 Sep 2019	7.775.404.264,01	8.467.198.764,49	7.268.903.216,96	3.583.585.848,88	394.726.933,91
01 Okt 2019	9.368.426.745,45	7.884.078.775,46	7.001.450.563,86	3.639.810.971,82	395.751.678,68
01 Nov 2019	10.646.806.635,73	8.966.191.150,03	7.823.038.953,91	3.896.058.001,76	340.170.005,65
01 Des 2019	12.130.128.837,50	7.667.148.377,79	7.008.975.115,68	3.778.588.005,22	414.424.178,94
01 Jan 2020	13.202.726.278,54	?	?	?	?

Table 3 – Breeder Profit & Margin Bonus Simulation

(Rp)		
Time	BreederProfit	BonusMargin
01 Jan 2019	259.898.268,70	0,00
01 Feb 2019	(129.125.972,18)	0,00
01 Mar 2019	(159.778.336,95)	0,00
01 Apr 2019	252.756.456,58	0,00
01 Mei 2019	456.031.408,67	0,00
01 Jun 2019	(55.651.070,52)	0,00
01 Jul 2019	203.733.104,23	0,00
01 Agt 2019	566.796.638,42	99.776.096,24
01 Sep 2019	573.328.118,64	118.954.794,05
01 Okt 2019	255.496.805,43	0,00
01 Nov 2019	466.232.910,38	99.790.492,86
01 Des 2019	53.810.563,87	0,00
01 Jan 2020	?	?

The initial value of the purchase price of feed is Rp.7100 and the purchase price of DOC is Rp.5300 and simulated an increase of 4% each month. The assumption of the increase is based on the observation of the last 3 years. Death rates, harvest weights, market prices are random. While financial resources, breeders population, on farm population and feedstock at the beginning of each simulation were valued at IDR 6,000,000,000, 13,384 chickens, 125,000 chickens, and 15,000 kg.

12-month time simulations show the company cumulatively has financial resources of IDR 13,212,235,506.54 from the initial period of IDR 6,000,000,000 or an increase of 120%. And the breeders' population cumulatively increased from 133928 to 144375 at the end of the simulation period.

Table 4 – Resource Configuration Simulation and PT AMM Production Results

Time	Mei 19	Jun 19	Jul 19	Agt 19	Sep 19	Okt 19	Nov 19	Des 19	Jan 20
BreederChickenPopulation (First) (Ekor)	134.919,89	136.729,39	136.519,22	137.293,82	139.472,02	141.664,95	142.622,03	144.363,13	144.558,10
TottalFeed (First) (Kg)	337.390,44	307.760,62	352.787,23	347.702,76	335.820,14	334.046,81	356.461,33	335.417,54	354.948,82
FeedOrder (First) (Kg)	302.887,45	263.992,23	331.811,95	308.927,25	283.813,96	282.590,34	312.664,50	282.238,51	315.776,22
DOC (First) (Ekor)	137.710,39	125.616,58	143.994,79	141.919,49	137.069,45	136.345,63	145.494,42	136.905,12	144.877,07
StockPakan (First) (Kg)	34.502,99	43.768,39	20.975,27	38.775,51	52.006,18	51.456,47	43.796,83	53.179,03	39.172,59
FeedReturnTotal (First) (Kg)	43.768,39	20.975,27	38.775,51	52.006,18	51.456,47	43.796,83	53.179,03	39.172,59	40.431,74
death rate (First) (%)	14,91	7,31	12,35	17,59	18,10	15,09	17,53	13,22	12,86
harvest weights total (First) (Kg)	218.146,18	181.699,74	221.723,61	231.109,14	224.331,07	216.405,99	236.805,58	212.911,03	224.376,47
DOCPurchasePrice (Rp/Ekor)	6.252,00	6.275,00	6.581,00	6.984,00	6.988,00	6.841,00	7.095,00	7.137,00	
FeedPurchasePrice (Rp/Kg)	7.346,00	7.337,00	7.470,00	7.508,00	7.590,00	7.691,00	7.767,00	7.793,00	
FinancialResource (First) (Rp)	4.905.775.457,54	5.849.063.975,28	6.001.856.296,89	6.420.082.657,55	7.775.404.264,01	9.368.426.745,45	10.646.806.635,73	12.130.128.837,50	13.202.726.278,54

The optimal configuration of all business model components for the company in the simulation is seen in May - December with a positive cumulative increase. If it reflects the vision of a company that wants balanced profits for both the company and the farmer. The exact configuration is in August, September and November of the simulation month. This is because the farmer reaches the maximum profit value and the company has a positive profit. The detailed optimal configuration can be seen in table 4.

CONCLUSION

The simulation results show that in January to March, and the month of production costs are higher than income and then the company calculates it as production debt to the related supplier. Relationships that are well established with suppliers allow payments in stages or are repaid in the second and fourth quarters. But this will endanger the company if these conditions occur in succession so that the company cannot pay its production debt, the result of which will affect the supplier's trust. Suggestions for companies based on the results of the analysis include limiting the population if the company experiences losses based on production costs in the previous period so that the company can control production costs in

accordance with its financial resources. Then for writers or researchers who conduct similar research to add variables that link financial resources with production costs so that there is a calculation of livestock production population that is in accordance with the ability of the company if the company's financial resources are negative. Conversely, if financial resources are positive, the company accommodates the ability of the breeders population to achieve maximum profit.

The author is aware of the limitations of this study, as for the limitations of the study's including:

- Limiting the scope of the study by eliminating external factors that affect market prices and demand for broiler products, this is due to the limitations of data and information and time in completing this study. Among them are the number of farmer populations, the number of similar imported products, or other substitute products such as beef;
- Limiting the company's resources to be limited to livestock production facilities even though human resources must also be included in the variables in the simulation model. This is because, PT. AMM is a family company that allows employees to be recruited and dismissed based on family principles. the termination simulation and the contribution of HR in this case are concerned to interfere with the overall simulation so the authors chose to negate the variable;
- Eliminate the contribution of human resources and resources for livestock production facilities to the level of productivity of production. The relationship between the quality of livestock production facilities and the contribution of farmers is eliminated given the limitations of the authors in interpreting them because the study is included in the field of animal husbandry study so it is good if researchers with related competencies can make simulations on this matter.

REFERENCES

1. Cosenz, F., & Noto, G. (2018). A Dynamic Business Modelling Approach to design and experiment new business venture strategies. 127-140.
2. Davis, J., Eisenhardt, K., & Bingham, C. (2007). Developing Theory Through Simulation Methods. *Academy of Management Review*.
3. Forester. (1997). Industrial Dynamics. *Journal of the operational research society*, 1037-1043. doi: <https://doi.org/10.1057/palgrave.jors.2600946>.
4. Franses, J. (2013, mart). Innovation in SMEs. The case of home accessories in Yogyakarta, Indonesia. The Netherlands: Institute For Housing and Urban Development Studies.
5. Geissdoerfer, M., Savaget, P., & Evans, S. (2017). The Cambridge Business Model Innovation Process. 14th Global Conference on Sustainable Manufacturing (pp. 262 – 269). Stellenbosch: *Procedia Manufacturing*.
6. Geissdoerfer, M., Vladimirova, D., & Evans, S. (2018). Sustainable business model innovation: A review. *Journal of Cleaner Production*, 401-416.
7. Jhon.WCreswell. (2010). *Research Design, Pendekatan Kualitatif, Kuantitatif, and Mixed*. Jakarta: Pustaka Pelajar.
8. Jhonson, M. W. (2018). *Reinvent Your Business Model*. Boston, massachusetts: Harvard Business review.
9. Masanell, R. (2010). From strategy to business models and onto tactics. 43.
10. Morecroft, J. D. (2015). *Strategic Modelling and Business Dynamics: A feedback systems approach*. Wiley.
11. Richardson, J. (2008). The business model: an integrative framework for strategy execution. 17, 133-144. doi: 10.1002/jsc.821.
12. Sterman (2001). *System dynamics modeling: Tools for learning in a complex world*. 43.
13. Zhao, X., Bon-GangHwang, & Lu, Q. (2018). Typology of business model innovations for delivering zero carbon buildings. 198, 1213-1226.

DOI 10.18551/rjoas.2019-08.02

ANALYSIS OF ECONOMIC EFFICIENCY FOR USE OF PRODUCTION AND INCOME FACTORS IN LOCAL CORNSELF IN WEWIKU AND MALAKA DISTRICTS OF NUSA TENGGARA TIMUR PROVINCE, INDONESIA

Tetik A.H.*, Prasetyo E., Lukiwati D.R.

University of Diponegoro, Indonesia

*E-mail: yantitetik2@gmail.com

ABSTRACT

Corn (*Zea Mays L.*) is the second food commodity after rice as a source of calories or rice food, besides that also as animal feed. This study aims to (i) Analyze the influence of production factors (land area, seeds, labor, and pesticides) on corn production in Wewiku District, Malacca District; (ii) Analyzing the level of economic efficiency using the factors of production of corn farming in Wewiku District, Malaka Regency; (iii) Analyzing income earned by farmers from Corn farming in Wewiku District, Malaka Regency. The study was conducted in Alkani Village and Seserai Village Kecamatan wewiku Malaka Regency with a survey method and the number of respondents was 90 farmers. The results showed that the analysis with the production function of the Cobb-Douglas model of variable land area, seeds, labor, fertilizers and pesticides together pushed significantly towards local maize production. The influence of each factor of production shows that local maize production has a significant effect on land area and pesticide variables, while seeds, labor and fertilizers are not real to local maize production. Economically the use of variable land area and pesticides on local corn ushatani is not yet efficient, and the use of variable seeds, labor and fertilizers is inefficient. The income of local corn farming in Wewiku District in the planting period from November to February is IDR 160,625,040.

KEY WORDS

Efficiency, income, corn, farming.

Indonesia is an agricultural country; most of Indonesia's population is domiciled in rural areas and has a livelihood in the agricultural sector. Until now, the agricultural sector is a major sector in people's lives in Indonesia. The agricultural sector still plays an important and strategic role in national ownership. Based on data from the Indonesian Central Statistics Agency (2018), in 2016 maize production in Indonesia amounted to 20,700 tons, while in 2017 corn production was 25,700 tons, and an increase of 5,000 tons. The corn production centers in Indonesia are East Java, Central Java, Lampung, South Sulawesi, North Sumatra, West Java, West Nusa Tenggara, Gorontalo and East Nusa Tenggara BPS (2017).

Corn (*Zea Mays L.*) is the second food commodity after rice as a source of calories or food substitute for rice, besides that also as animal feed. For residents of East Nusa Tenggara (NTT) Corn is a superior agricultural commodity in the region because it is used as a staple food for the majority of the population so that maize is cultivated from the lowlands to the mountains to meet the regional demand for maize, which increases annual crop productivity. There are several important factors so that corn productivity in East Nusa Tenggara (NTT) can continue to increase, namely (1) planting area, (2) modern farming patterns, (3) fertilizer use, and (4) use of superior seeds.

The province of East Nusa Tenggara (NTT) is the number nine center for corn production in Indonesia after East Java, Central Java, Lampung, South Sulawesi, North Sumatra, West Java, West Nusa Tenggara and Gorontalo (BPS, Indonesia 2017). Corn production in East Nusa Tenggara (NTT) has fluctuated over the past five years. According to the East Nusa Tenggara Statistics Agency 2013-2017 (BPS, NTT 2013-2017) the highest corn productivity in 2013 was 2.62 tons / ha with a harvest area of 270,344 ha and production of 707,638 tons. In 2014 corn productivity was 2.52 tons / ha with a harvest area of 257,025 ha and production of 647,108 tons. In 2015 corn productivity was 2.51 ha / ton

with harvest area of 273,194 ha and production of 685,081 tons. In 2016 maize productivity was 2.59 tons / ha with harvested area of 265.318 ha and production of 688.452 tons, and in 2017 corn productivity was 2.591 ha / ton with harvest area of 311,322 ha and production of 806,846 tons. The average productivity of corn at the level of farmers in East Nusa Tenggara (NTT) is still very low, between 2.62-2.59 tons / ha (BPS NTT). The low productivity of corn occurs because generally farmers still plant local varieties that have not been replaced with superior varieties for a long time and are attributed by several factors between other farmers who have not been efficient in allocating production inputs used in farming as well as easy farming and technology development. So it produces less than optimal production and this will be profitable for farmers. Soekartawi (2016), said that the choice of the combination of the use of seeds, fertilizers, labor, optimal medicines will get maximum results. According to Saptana's research (2011), the level of allocation of the use of production factors by farmers to the amount of production produced, the level of production, and can provide an overview of the level of efficiency obtained by farmers.

Productivity of crop yields is consumed by drought stress. The same thing happened to corn plants. Drought that occurs in each phase of growth will decrease. The initial growth phase and flowering phase are the most sensitive phases of drought stress. When drought occurs in the initial growth phase can cause plant growth to be blocked (dead). Whereas when drought occurs in the flowering phase, it causes the female flower to reverse faster than the male flower, thus minimizing the chances of successful pollination and causing an increase in seed production.

Malaka Regency is one of the corn producing districts in East Nusa Tenggara (NTT) Province. The sub-districts in the Malacca District are all corn plants. Corn grown by farmers uses local varieties of Lamuru with two types, namely white corn and yellow corn. Wewiku Subdistrict is one of the Districts in Malaka District which has the potential to develop corn, which can be seen from extensive land, production and productivity. Corn production in Wewiku District has increased over the past five years. According to the Malaka Regency Central Bureau of Statistics in 2013-2017 (BPS, Malaka Regency 2013-2017) the highest productivity was achieved in 2015, which was 3.29 with a land area of 1,521 ha and 5,019 tons, while the lowest productivity in 2016 was 2.89 with a harvest area of 1,057 ha and production of 3,065 tons. The low productivity of maize is predicted by heterogeneous heterogeneous heterogeneity promoted using the farmers' own crop hereditary on a limited scale (inbreeding).

The research objectives are (1) Analyzing the influence of production factors (land area, seeds, labor, and pesticides) on corn production in Wewiku District, Malacca District. (2) Analyzing the level of economic efficiency using the factors of maize farming production in Wewiku District, Malaka Regency and (3) Analyzing the income earned by farmers from Corn farming in Wewiku District, Malaka Regency.

METHODS OF RESEARCH

Research has been carried out in Alkani and Seserai Villages, Wewiku Sub-District, Malaka Regency, East Nusa Tenggara (NTT) for two months, namely February and March 2019, with survey methods. Determination of samples is done by Simple Random Sampling obtained by 90 local corn farmers. This study uses secondary data and primary data. Secondary data was obtained from other existing sources and from the Indonesian Ministry of Agriculture, Malacca District Agriculture, Plantation and Forestry Agency, and Central Statistics Agency. Primary data was obtained from the respondents' farmers using a questionnaire. Data collected using: farmer identity, capital use, corn farming planting season period November 2018 - February 2019 (use of seeds, fertilizer, pesticides, labor, and other uses of corn farming), production and post-harvest processing, management and marketing.

The data analysis used in this study is quantitative analysis based on primary and secondary data from the results of the study. Quantitative analysis is carried out using analysis of production and efficiency of the use of economic factors, and analysis of farm

income. Analysis was carried out with Microsoft Excel and SPSS 16 Statistical Products and Services Solutions.

The first objective: Analyzing Production Factors that Affect the Production of Corn Farming.

The analytical method used to study the effect of factor-use on corn production is the production function of the Cobb-Douglas model.

$$Y = Ax^1b^1, X^2b^2, X^3b^3, X^4b^4, X^5b^5e^u$$

To output the parameters, the equation must be transformed in the form of a natural double logarithm (1n) into a multiple linear form, as follows:

$$\ln Y = \ln a + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + u$$

Where: Y variable is local corn production (kg), X1 land area (ha), X2 seed (kg), X3 labor (HOK), X4 manure (kg) and X5 = pesticide (lt), u = estimation deviation, a = constant, b1,2, ...5 = regression coefficient. The independent variable influences the production results in the above model using the F test and t test (Ghozali, 2011).

Second Objective: Analyzing the Economic Efficiency Level of Using Production Factors in Corn Farming. According to Asmara (2017), the concept of technical efficiency is related to the production theory that discusses the maximum product that can be obtained from each use of certain combinations. Technical efficiency can produce maximum for each input use, but if it is not fulfilled it results in ineffectiveness use of these input combinations. According to Dewi et al. (2018), the production factor does not achieve technical efficiency with the value of production elasticity depending on the number one.

Technical efficiency requires or requires a production process that can use fewer inputs to produce the same amount of output (Millier & Meiners in Suprapti et al., 2014). Technical efficiency reflects the ability of farmers to obtain maximum results from a certain number of inputs. A farmer provides technically efficient from farmers if it can produce greater output at the level of use of smaller inputs at the same technological level, also provided more efficiently than other farmers, if it produces the same output.

If the production function used is the Cobb-Douglas production function model, then:

$$Y = AX^b$$

$$\log Y = \log A + b \log X$$

$$EP = \frac{\partial Y}{\partial X} \frac{X}{Y} = b$$

In the Cobb-Douglas model production function, b is called a regression coefficient which simultaneously reflects production elasticity. The value of elasticity is the presentation of changes in output as a result of the presentation of changes in inputs. Technical efficiency can be seen through its elasticity value. Technical efficiency will increase farmer efficiency which results in an elasticity value between zero and one.

Price efficiency (allocative) is the ability of farmers to maximize profits by equating the Marginal Product Value of NPM for each production input with the desired production factor price. Related to price efficiency, it is used as a benchmark to regulate the use of production factors in such a way that the value of the marginal product for input X is equal to the price of the production factor (input).

Thus, the marginal product value (NPM) of production factor X, can be written:

$$NPM_x = \frac{b \cdot Y \cdot p_y}{x}$$

Where: b = production elasticity; Y = production; Py= production price; X= number of factors of production.

The price-efficient requirement to get the maximum profit requires NPMx to be equal to the price of the production factor X, which can be written as follows:

$$NPMx = Px$$

$$\frac{NPMx}{Px} = 1$$

Where: NPM = Marginal Production Value; Px = Price of production factors X.

However, in agreement with NPMx and Px, it was obtained three times:

- $\frac{NPMx}{Px} = 1$; the use of production factors X efficiency;
- $\frac{NPMx}{Px} > 1$; That is, the use of production factors X is not efficient, to achieve efficiency, the use of input X needs to be add on;
- $\frac{NPMx}{Px} < 1$; That means the use of production factors X is not efficient, so to achieve efficiency, the use of input X needs help.

The efficiency of the price reaches when the calculation of the NPMxi and Px ratios for each production factor is equal to one, so that the optimal value of each production factor can be calculated to achieve efficiency. It is estimated that it can be done in the following ways:

$$\text{Optimal compilation production } NPMxi/Pxi = 1$$

$$\text{Atau } NPMxi = Pxi$$

$$PMXi = \frac{bi \cdot \dot{Y}}{Xi}$$

$$NPMXi = Pxi = Pmxi \cdot Py$$

$$Pxi = \frac{bi \cdot \dot{Y}}{Xi} \cdot Py$$

$$Xi = \frac{bi \cdot \dot{Y}py}{pXi}$$

Susantun (2000), economic efficiency obtained from previous efficiency, efficiency and efficiency supported by, follows:

1. Requirements required (requirements required) indicate the physical relationship between input and output, namely the production process at the time of production elasticity between 0 and 1. This result is technical production efficiency.

2. Adequacy requirements (sufficient conditions) relating to approval, namely the maximum requirements that can be determined by the value of marginal products equal to marginal, or the maximum profit requirements obtained from assessing the marginal value of products with marginal factor cost or $NPMx / px = 1$

Third Objective: Analyzing Revenue in Corn Farming. Analysis Revenue is the balance between costs incurred as a production process.

With income formula:

$$Pd = TR - TC$$

Where: Pd = Income; TR = Total receipt; TC = Total cost.

RESULTS AND DISCUSSION

Based on the results of research on the number of respondent farmers in Alkani and Seserai Villages, Wewiku Subdistrict, Malaka District who cultivate the most local maize in

the age range of 47-56 years or (35.5%) and the lowest age range is 67-76 or (3.33 %). This shows that the majority of respondents were at the productive level, namely the age of being able to cultivate local corn to increase the production and income of farmers. According to Soekartawi (2016), that the level of craft use at the level can improve work ability, because the more increasing the age level, the increasing level of productivity in work. Whereas according to Yuliana et al. (2017), the farmer level influences the policy of farmers making decisions in farming activities and influencing the physical abilities of farmers in carrying out farming engagements, which ultimately affects farm production.

Based on the results of research in Alkani and Seserai Villages, Wewiku Subdistrict, Malaka District varied from farmers did not graduate TS (not school), elementary, junior high and high school. The highest level of education possessed by farmers is SD as many as 47 farmers or (52.2%) then SMP as many as 21 farmers or (23.3%), SD as many as 12 farmers or (13.3%), and those of value is a high school of 10 farmers or (11.1%). It can be concluded that the level of education that is still low is therefore still to be improved. The state of education is very low at the level of application of technology and insights that increase the production and income of farmers. According to Nurhaphsa (2013), education is an insignificant one that can change attitudes or mindsets. Education will make it easier for someone who instills information and new technological innovations will improve quality in making decisions in an effort, which in turn will affect farmers. While according to Dlamini et al (2016), discussing formal education does not refer to corn production.

Based on the results of the research in Alkani and Seserai Villages, Wewiku Subdistrict, Malaka Regency with 14-25 years experience of 45 people or (50%) with the least experience of 36-45 years, namely 1 person or (1.1%). Experience shows that the respondent farmers in applying agricultural technology about local corn farming. According to Widiyanti (2016), farming experience can be negatively correlated with farmers 'motivation in applying technology and innovation to improve the experience of corn farmer farmers will be able to increase farmers' motivation to promote technology and innovation. The results of the Syaifullah et al (2014) study show the fact that the low yields of corn farmers cannot increase corn because the dominant dive farmers apply their own experience to do their business by encouraging the development of new technologies that have been tested to improve production.

Factors of production Evaluate the physical relationship between input and output through the equation $Y = f(x)$. To find out how the factors of production to local maize production were analyzed by a non-linear Cobb-Douglass model, which in operation was changed in multiple linear forms. Before being analyzed by multiple linear models, it was tested beforehand whether the data of production factors and local maize farm production results used had a linear or not relationship, so that there was no deviation in the regression model. After the linearity test, continued with the classic assumption test, the normality test, multicollinetic, and heteroscedicity tests were completed.

The model of the contribution of production functions to local corn ushatani is seen in table 1:

Table 1 – Regression coefficients affect production factors for local maize production

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	564.137	100.948		5.588	.000
land area	5.442	1.571	.508	3.464	.001
Seed	-1.285	4.247	-.056	-.303	.763
labor	2.205	1.900	.108	1.160	.249
Fertilizer	.767	.586	.212	1.310	.194
Pesticide	129.204	34.771	.615	3.716	.000

Source: Analysis of Primary Data (Processed), 2019.

Based on Table 1, a regression equation for production factors can be made for the following local maize production:

$$Y = 67,150X_1^{0,508}X_2^{-0,056}X_3^{0,108}X_4^{0,212}X_5^{0,615} u_e$$

Where: Y = Local corn production; X1 = total land area; X2 = number of seeds; X3 = number of workers; X4= amount of fertilizer, and X5 = amount of pesticides.

The results of the Normality test in Alkani Village and Seserai Village, Wewiku Subdistrict, Malaka Regency, can be seen as a significance value of 0.933> than 0.05. This indicates that the data is normally distributed.

The t test is used to study the effect of using partial production factors on corn production. The t test is carried out with a confidence level of 95% or a significant value of 0.05. The test results of the influence of variables on land area, seeds, labor, fertilizers and pesticides can be seen in Table 2.

Table 2 – Results of Test Analysis t

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	564.137	100.948		5.588	.000
land area	5.442	1.571	.508	3.464	.001
Seed	-1.285	4.247	-.056	-.303	.763
labor	2.205	1.900	.108	1.160	.249
Fertilizer	.767	.586	.212	1.310	.194
Pesticide	129.204	34.771	.615	3.716	.000

Source: Primary Data Analysis, 2019.

Based on Table 2, it can be seen that Alkani Village and Seserai Village, Wewiku Subdistrict, Malacca District, the production factors used in corn farming, namely land area and pesticide are production factors which are partially in accordance with corn yield. While the factors of seed production, labor and fertilizers are not real to the yield of corn.

The results of the t test for land area variables obtained t count value of 3.464 with a confidence level of 95%, and a significant value of 0.001. From the results obtained t count is greater than t table and a significant value is greater than 0.05, then it can be given the individual land area yields a real yield on corn yield Tomy (2013), and Yuniarsih et al. (2015), which states that land area has a positive relationship and real participation in corn production.

The results of the t test for seed variables obtained t count of -0.303 with a confidence level of 95%, and a significant value of 0.763. From the results obtained t count smaller than t table and a significance value greater than 0.05, it is acceptable that individual seeds are not significantly related to corn production.

The results of the t test for the labor variable obtained by t count of 1.160 with a confidence level of 95%, and a significant value of 0.249. Obtained t count smaller than t table and a significant value greater than 0.05, then individual labor can be given not significantly related to corn production. Yuliana et al. (2017), states that labor does not approve real to corn production.

The results of the t test for the fertilizer variable obtained t count of 1.310 with a confidence level of 95%, and a significant value of 0.194. It can be obtained t count smaller than t table and significance value greater than 0.05, then individual fertilizers can be given not significantly related to corn production. This condition is related to the research of Yuliana et al. (2017), implying that manure is not real to corn production.

The results of the t test for pesticide variables obtained t count value of 3.716 with a confidence level of 95%, and a significant value of 0,000. Obtained from a calculation greater than t table and a significant value greater than 0.05, it can be explained that individual pesticides significantly influence the yield of corn.

The effect of the use of factors of production of land area, seeds, labor, fertilizers and pesticides together on local maize production can be known by carrying ou the f test (f-test).

Table 3 – Test Results

ANOVA^b

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	462483.112	5	92496.622	8.274	.000 ^a
Residual	939072.444	84	11179.434		
Total	1401555.556	89			

Source: *Primary Data Analysis, 2019.*

Based on Table 3, it can be seen in Alkani Village and Seserai Village, Wewiku Subdistrict, Malaka Regency, the value of f count is 8.27 greater than f table 2.32. This shows that the production factor consists of extensive land, seeds, labor, fertilizers and pesticides together with the real local maize production. This condition is contrary to Susilawati et al. (2015), stated that large areas, seeds, labor, fertilizers and pesticides jointly supported the production of corn.

Adjusted (R^2) test is used to show the ability of the model to explain the relationship between production factors used for local corn farming and local corn production. In the regression analysis the number of independent variables included in the model has more than two independent variables, so the coefficient of determination used is adjusted by R^2 or the coefficient of determination adjusted to Priyatno (2009). From the analysis results, R^2 adjustment is 0.290 or 2.9%, which means that the variation of local corn production of 2.9% is needed by variable land area, seeds, labor, fertilizers and pesticides, which can be accessed by other factors such as soil fertility, weather and other factors not estimated in this study.

Based on the analysis results obtained D-W of 1.823. Because the value of D-W obtained is located between 1.77 <DW> 2.23, meaning that it can be obtained if there is no autocorrelation.

Table 4 – Multicollinearity Test Results

Coefficients ^a	
Independent variable tolerance VIF information	
Land area (x1)	.416 2.407 There is no multicollinearity
Seed (x2)	.234 4.274 There is no multicollinearity
Labor (X3)	.924 1.083 There is no multicollinearity
Fertilizer (X4)	.304 3.289 There is no multicollinearity
Pesticides (x5)	.291 3.438 There is no multicollinearity

Source: *Analysis of Primary Data (Processed), 2019.*

Based on Table 3, it can be seen that in Alkani Village and Seserai Village, wewiku District, Malaka, tolerance and VIF values for each independent variable. For the land area variable, it is known that the tolerance value is 0.416 and the VIF value is 2.407. Then it can be concluded that in the independent variable of land area (X1) there is no multicollinearity. For the seed variable, it is known that the tolerance value is 0.234 and the VIF value is 4.274. Then it can be concluded that in the independent variable of seed (X2) there is no multicollinearity. For labor variables, it is known that the tolerance value is 0.924 and the VIF value is 1.083. Then it can be concluded that the independent variable of labor (X3) does not occur multicollinearity. For fertilizer variables, it is known that the tolerance value is 0.304 and the VIF value is 3.289. So it can be concluded that the independent variable of fertilizer

(X4) does not occur multicollinearity. And for the pesticide variable, it is known that the tolerance value is 0.291 and the VIF value is 3.438. Then it can be concluded that independent pesticides (X5) do not occur multicollinearity.

Variable of error regression model is not constant or variable between one error with another error is different (Riadi 2015). This test aims to analyze whether the variance of error is constant (homoskedastic) or changing (heteroscedastic). Can be seen from the pattern of distribution of errors, if it is in a certain pattern, heteroscedasticity occurs, if there is no pattern (random), and then there will be no heteroscedasticity of Rosadi (2011).

Based on the scatterplot diagram it can be seen that the patterns in the diagram spread and not and do not form a particular pattern, meaning that it can be concluded that heteroskedastistas do not occur.

Economic efficiency analysis of the use of production factors can be done using regression coefficient values of each input production variable, average use of production inputs, average input production prices and average corn production and corn prices in Alkani Village and Seserai Subdistrict Village My district of Malacca. The average use of production inputs can be used to estimate the cost of values, as shown in Table 5.

Table 5 – Calculation of economic efficiency using the factors of production of corn farming in Wewiku District, Malaka district

Production factor	Xi	Bi	PMxi	NPMxi	PXi	NPMxi/xi
Land	8,34	5.442	486,778	1,779,660	1.300.000	1,368
Seed	25,11	-1,285	-38,176	-139,571	650,000	-0,214
Labor	27,99	2.205	58,76	214,826	582.778	0,368
Fertilizer	135,2	0,767	4,232	15,472	500.000	0,030
Pesticide	1,81	129.204	53,252	194,689	150.744	1,291
Production	746					
The price of corn	3.656					

Source: Primary Data Analysis, 2019.

Based on Table 5, it shows that in Alkani and Seserai Villages, wewiku Subdistrict, Malaka Regency, it is known that the value of economic efficiency of land area is more than one. The value of economic efficiency of seeds is less than one, so the combination of the use of seed production factors in corn farming is not achieving efficiency. The value of economic efficiency of labor is less than one, so the combination of the use of labor production factors in corn farming is not achieving efficiency. The value of economic efficiency of fertilizers is less than one, so the combination of the use of fertilizer production factors on corn farming is not achieving efficiency. While the economic efficiency of pesticides is more than one, the combination of the use of labor production factors in corn farming is not yet efficient.

Based on attachment 13, the average total production obtained by local corn respondent farmers is 746 kg with a selling price of 3,656 per kg, so that the total revenue is 2,711,111 per 0.15 hectares of land. The average farmer income of respondents in local corn farming is Rp. 2.711,111 and the average expenditure is Rp. 926,388 so that the income of the respondent farmers in local corn farming is Rp. 1,784,723.

CONCLUSION

Factors of production of variable land area, seeds, labor, fertilizers and pesticides jointly have a significant effect on local maize production. The influence of each factor of production shows that local maize production has a significant effect on land area variables and pesticides, while seeds, labor and fertilizers have no significant effect on local maize production.

The economical use of seed, labor and fertilizer factors does not reach efficiency. While the use of economic factors in the production of land area and pesticides has not yet reached efficiency.

Local maize farming income in Wewiku District, Malacca District in the planting period from November to February is Rp. 1,784,723.

REFERENCES

1. Asmara. 2017. Production Efficiency Front Stochastic Approach and Data Envelopment Analysis (DEA). Department of Agricultural Economics, Faculty of Agriculture, Universitas Brawijaya. Poor.
2. Central Bureau of Statistics. 2018. Data on Harvest Area, Production and Productivity in 2016-2017.
3. Central Nusa Tenggara (NTT) Provincial Statistics Agency. 2018. Data on Harvest Area, Corn Production and Productivity 2013-2017.
4. Dewi, A. R. Y. T, S. I. Santoso, and E. Prasetyo. 2018. Analysis of technical and economic efficiency in the use of production factors in hybrid corn farming in Sidomulyo 01 farmer group in Sukolilo District, Pati Regency. *Journal of Agricultural Sciences*. 2 (1): 1-10.
5. Dlamini, N. S. dan Salomon, W. K. 2016. Effect of ingredients ratio on physicochemical and sensory properties of shorgum, maize and soya protein concentrate blend extrudates. *International Journal of food Science and Nutrition Engineering*. 6 (5): 112-120.
6. Miller, R. L., and R. E Meiners. 2000. *Micro Intermediate Economic Theory*. PT Raja Grafindo Persada. Jakarta
7. Nurhapsa. 2013. Analysis of Technical Efficiency and Risk Behavior of Farmers and Their Effects There Is Application of Superior Varieties in Potato Farming in Enrekang Regency, South Sulawesi Province. Doctoral Dissertation. Postgraduate School, Bogor Agricultural Institute, Bogor (in Indonesia).
8. Riadi, E. 2015. *Parameter and Non-Parameter Statistical Methods for Research in Social and Educational Sciences*. Mandiri Library. Tangerang
9. Rosadi, D. 2011. *Economical Analysis and Applied Time Guide*. CV. Andi Offset. Yogyakarta.
10. Saptana. 2011. Production Efficiency and Farmer Behavior Against the Risk of Red Chili Productivity in Central Java Province. Dissertation. Postgraduate of Bogor Agricultural University. Bogor.
11. Soekartawi. 2016. *Analysis of Farming*. UI Press. Jakarta.
12. Susantun, I. 2010. Cobb-Douglas profit function in estimating relative economic efficiency. *Journal of development economics* vol 5 no 2.
13. Shaifullah, L. Arsyad. A, and Miftah H. 2014. Comparative study of farming analysis and margins of organic and non-organic carrot farming systems (case study of BP3K working area in Cisarua Sub-district, Bogor Regency, West Java Province). *Journal of Agriculture*. 5 (2): 78-88.
14. Susilawati, Y. Sugeng and S. Adi, 2015. Analysis of allocative efficiency of production factors for hybrid maize farming in the Agribusiness business area combined (strong) Rasau Jaya Komplek Kabupaten Kubu Raya. *Economy of Agriculture social journal*. 4 (2): 1-15.
15. Tomy, J. 2013. Analysis of production and income of corn farming in Palolo District, Sigi Regency. *Agroland Journal*. 20 (2): 146-154.
16. Widiyanti. 2016. Farming Performance and Motivation of Farmers in the Application of Hybrid Corn Seed Innovations on Dry Land in East Lombok Regency. Thesis. *Economic and Business Research, Practice Theory*. Graha Ilmu. Yogyakarta.
17. Yuniarsih, E. T., Maintang, and M. Taufik. 2015. Analysis of the efficiency of production factors for corn ushatani in Sidrap Regency, South Sulawesi Province. *Proceedings of the Cereals National Seminar*.
18. Yuliana L, Yuyetta A, N, E, 2017. Analysis of factors that influence company leverage (empirical studies on invoice manu companies listed on the Indonesia Stock Exchange 2013-2015). *Journal, Of Accounting*, 6 (3) 1-13.

DOI 10.18551/rjoas.2019-08.03

ANALYSIS OF THE EFFECT OF BRAND IMAGE, PRODUCT QUALITY AND AFTER-SALES SERVICE ON REPURCHASE DECISION OF SAMSUNG SMARTPHONES

Raditya Bayu*

Department of Business and Management, Faculty of School of Business,
Bogor Agricultural University, Bogor, Indonesia

Yuliati Lilik Noor, Krisnatuti Diah

Department of Economics, Faculty of Economy and Management,
Bogor Agricultural University, Bogor, Indonesia

*E-mail: bayu_radith@yahoo.com

ABSTRACT

International Data Corporation (IDC) stated that the market share of smart phones in Indonesia is very large with Samsung in the top rank. More and more smartphone brands in the Indonesian market causing smartphone companies to always improve the quality and innovate their products, especially for old brands so that their presence is maintained. The purpose of this study was to determine the respondent characteristics of Samsung smartphones in Special Capital Region of Jakarta, analyze the influence of brand image, product quality, after-sales service on repurchase decisions and formulate Samsung's managerial implications regarding strategies in maintaining Samsung smartphone consumer repeat purchase decisions. This study used a quantitative approach that is carried out by distributing questionnaires to respondents. Data is collected from November to December 2018. The respondents were determined by purposive sampling. Data processing techniques using SEM-PLS with SmartPLS M2.0 and descriptive analysis using Microsoft Excel. The results show that product quality and after-sales service have a significant influence on repurchase decisions, while brand image rejects the hypothesis, which has a positive but not significant effect. The managerial implication that Samsung can use as a manufacturer is to maintain the quality of durability and product reliability and provide special attention and comfort to smart phone users in accessing warranty claims on the products they have owned.

KEY WORDS

Brand image, repeat purchase decision, product quality, after-sales service, SEM-PLS.

International Data Corporation (IDC) stated that the smartphone market share in Indonesia is so large. Smartphone sales rose by as much as 17% or as much as 29.3 million units in 2016, so this sector is quite feasible to be worked on by both foreign and local companies. The development of the smartphone market in Indonesia shows that competition between companies both foreign and local compete to enter and create distinctive characteristics of their own strategies in getting consumers such as creating products and presenting new smartphone brands. The emergence of these new brands needs to be taken into consideration for brands that have long been in Indonesia so that their existence is maintained. The development of Indonesia's smartphone market share can be seen in Figure 1.

The existence of Samsung is still in the top rank in terms of smartphone market share achievements in Indonesia. This is certainly the strategies and policies implemented by Samsung itself. Product innovation continues to be carried out by Samsung smartphone brands to attract the attention of consumers, so consumers are willing to buy products that have been produced. Samsung's market share had experienced an increase in 2012-2013, but in 2014-2016 it had decreased. According to Hadi (2015), one of the things that made Samsung's sales declined due to the increasingly widespread smartphone brands from

China such as Asus, Vivo, Oppo, Xiaomi, Huawei, Meizu, OnePlus (others) which took the segmentation of Samsung's middle-class smartphone market. The decline in Samsung's market share in 2016 was due to one of the best smartphone product outputs, the Samsung Galaxy Note 7, which product specifications were considered a failure because they could explode under certain conditions. The Samsung Galaxy Note 7 at its product launch received a very positive response from various circles, but because there was a production failure on the smartphone's battery, Samsung announced the decision to recall the Galaxy Note 7 from the world market on September 2nd 2016 which make some people (consumers) feel disappointed and threatened and switch their phones to other brand products.

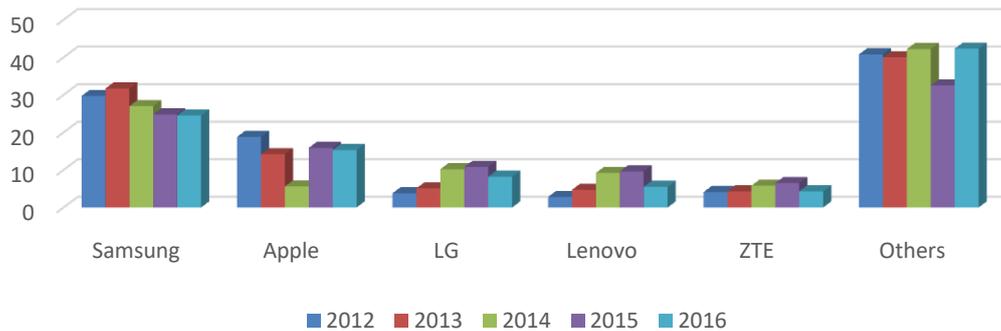


Figure 1 – The development of Indonesia's smartphone market share
(Source: International Data Corporation, 2016)

The Samsung brand continues to strive to maintain the quality of its products so they don't lose the market potential to lose the market. Similar problems can also occur in other smartphone companies in Indonesia, so that the application of new innovations and improvements to the quality of important products continues to be carried out as a way to survive in the market with quite diverse competing products. Circulation of smartphones that are so diverse in the market with the types, shapes, specifications and brand names that exist, in the end consumers determine in making purchasing decisions. Consumers can be selective in choosing tastes, views, and beliefs in a brand that is believed to be good and suitable for purchase. Positive brand image is important in keeping consumers from moving to other brands.

Besides building a brand image, maintaining product quality is also an important thing. Product quality is things that are offered to the market to get attention, be bought, used or consumed that can satisfy consumer desires (Sundalangi et al. 2014). The better the quality of the product produced, the better chance for consumers to make purchasing decisions. The general purpose of establishing the quality of the product itself is to convince consumers that the product is the best according to consumer needs. Brand image and product quality can also make consumers make repurchase decisions on the products offered and increase market share. This is in line with the research of Devaraj et al. (2001) which states that good product quality can provide a good image of a product, thus creating a intention to re-buy from customers and Keller (2008) reveals that a quality product must be supported by a strong brand to become the market ruler.

Besides the formation of consumer preferences for brand and product quality, providing after-sales services to consumers can also increase consumer preferences in viewing products from preferred brands and product repurchase decision making. Boyd et al. (2000) said after-sales service is one dimension of consumer consideration in making purchasing decisions before dropping to choose products that suit their needs and desires. Smartphone companies even dare to provide after-sales services in the form of compensation if the product is not in good quality or not in accordance with the promotion delivered to convince consumers better. This is done to maintain consumer believe in the products that have been

purchased, as well as to keep consumers from being able to repurchase and not move to other smartphone competitors.

Regarding after-sales service, some Samsung consumers still feel bad about the after-sales services provided by Samsung when viewed from handling unpleasant defects and the length of time to repair or replace parts that are not in accordance with the promised time as in LCD replacement cases (Junaidi 2016). These things caused many consumers complain about the after-sales services provided by Samsung. Based on the description of above regarding the phenomenon that occurred in the Samsung smartphone industry, the purpose of this study was to identify the respondent characteristics of Samsung smartphones in the DKI Jakarta area, analyze the influence of brand image, product quality, after-sales service on repurchase decisions Samsung smartphones in the Special Capital Region of Jakarta area and formulate strategic recommendations in maintaining the decision to repurchase Samsung smartphone users.

LITERATURE REVIEW

Brand image is an important thing for a company because the brand can reflect the manufacturer's quality of a good product or service. A brand image is a name, term, sign, symbol, design, or a combination of all that is intended to identify the seller's goods or services or a group of sellers and to differentiate them from competitor's goods or services (Kotler 2008). Rangkuti (2004) explains that brand image is a set of brand associations that are formed and embedded in the minds of consumers. Brand image is a representation of the overall perception of the brand that is formed through information and past experience of the brand itself (Setiadi 2003). According to Aaker and Biel (1993), Engel et al. (1995) and Simamora (2008) brand image has three components, namely:

- Corporate image, which is a set of associations that consumers perceive to companies that make products and services in a corporate network;
- User image, which is a set of associations that consumers perceive to users who use goods or services, including the user itself, lifestyle, personality, social status;
- Product image, which is a set of associations that consumers perceive to a product, which includes the product attributes, benefits for consumers, users, and guarantees.

Quality is the totality of the features and characteristics of a product or service that depends on its ability to satisfy expressed or implied needs (Kotler and Keller 2009). According to Kotler and Armstrong (2008) product quality is a product characteristic that depends on its ability to satisfy customer needs that are stated or implied. Iskandar (2015) explains that if the quality of the products produced is good, then consumers tend to make repeat purchases, while the quality is not in accordance with their expectation, consumers will change their purchases to other similar products, where consumers will buy products that they believe are higher quality. Every consumer must have a different perception of product quality, but consumers will choose products that can satisfy their needs. Quality reflects all dimensions of product offerings that produce benefits for customers (Tjiptono and Chandra 2012). According to Garvin (1987) and Tjiptono (2008) there are eight dimensions in product quality that need to be continuously considered and developed, those are:

- Product performance, related to the functional aspects of the product and the main characteristic (core product) that customers consider when they want to buy a product;
- Features, the second aspect of performance that adds basic functions, which is related to additional features;
- Reliability, related to the possibility of a product functioning successfully in a period of time and under certain conditions;
- Conformance, related to the level of conformity of the product to the specifications that have been previously set based on customer desires;
- Durability, a measure of the lifetime of a product. This characteristic is related to the durability of a product;

- Serviceability (ease of repair), a characteristic related to speed, ease, and accuracy in repairs;
- Aesthetics, a characteristic of beauty that is subjective so that it is related to personal consideration and reflection or individual choice;
- Perceived quality, which is subjective, is related to customer feelings in consuming products, such as increasing self-esteem.

After-sales service is a service provided by producers to consumers after the consumer bought a product (Kotler and Keller 2009). According to Tjiptono (2008) there are several alternative strategies that can be done by companies to reduce the possibility of uncertainty by providing after-sales services, namely providing guarantees to reduce consumer perceptions of the risk of purchasing, repair services, and providing replacement parts. According to Levit, quoted by Tjiptono (2008), stated that the more sophisticated the technology of a generic product such as a car, a photocopy machine, a computer, the sales will depend on the quality and provision of accompanying customer services such as show rooms, delivery, repair and maintenance facilities, application assistance, operator training, installation consultation and warranty.

Budiarto and Tjiptono (2003) suggest that after-sales service is needed especially in relation to efforts to create customer satisfaction and repurchase. After-sales service measurements combine from several research journals namely Banerjee (2010), Angelova and Zekiri (2011), Fazlzadeh et al. (2011), Neha and Manoj (2013), Diyah et al. (2013), Kidane and Sharma (2016) and Khan et al. (2016). Based on these studies, the dimensions of after-sales service that can be applied to smartphone products are the provision of guarantees, information technology assistance through mobile phone applications and customer service.

The interest in repurchasing is basically the behavior of customers who respond positively to the quality of the services of a company if they meet consumer expectations or even exceed customer expectations, customers will intend to revisit or re-consume the company's products and customers will even convey good things to others (Kotler and Keller 2009). Repurchases occur if a product purchased with an experiment turns out to be satisfying or more satisfying than the previous brand, so consumers want to repurchase or repurchase shows purchases that occur after consumers have experience with products and companies (Schiffman et al. 1994). Repurchase behavior is often associated with loyalty. Evans and Laskin (1994) said in his research that loyal customers are people who make repeat purchases from similar companies, notify other potential customers through word of mouth and become an antidote to attacks from competitors. The interest in repurchasing can also be claimed as buying interest. Assael (1998) explains buying interest is a behavior that appears as a response to an object or is also an interest in repurchasing which shows the customer's desire to repurchase.

A positive image can be strength for the brand used by a product. The research conducted by Wijaya and Astuti (2018) found that brand image results have a positive and significant effect on consumer repurchase decisions, the better the brand image that can be created, the higher the decision to buy again from Berrybenka consumers in the Semarang region. Significant influence between brand image on purchasing decisions is also in line with research conducted by Huang et al. (2011), Ain and Ratnasari (2015) and Paramananda and Sukaatmadja (2018).

This indicates that the higher the brand image perceived by consumers, the higher the consumer's interest in repurchasing (Chen and Hsieh 2011). Ranjbarian et al. (2012) also stated that brand image indirectly affects repurchase decisions in Iranian department stores that are mediated by customer / consumer satisfaction. The decision to repurchase a product caused by the creation of a good brand image can help companies achieve good financial performance. This is consistent with the statement of Roberts and Dowling (2002) which states that the brand image of a company is valuable intangible capital that is difficult to imitate and can help the organization to achieve sustainable and superior financial performance.

Previous research related to product quality on repeat purchase decisions is as follows: Kotler and Armstrong (2008) state that the better the quality of the products produced, the more opportunities for consumers to make purchasing decisions. Product quality is everything that is offered to the market to get attention, be bought, used or consumed that can satisfy consumer desires (Sundalangi et al. 2014). This is reinforced by the study of Lin and Lin (2007) which explains that product quality is the most important thing in purchasing decisions. Kurniawan et al. (2010), Lin et al. (2011), Isyanto (2012), Singh M (2013), Wulansari (2013), Sun et al. (2014), Iriani and Tunjungsari (2015) and Susanto (2016) state that product quality has a significant influence on consumer purchasing decisions and some of these studies product quality are among the most dominant factors in the decision to buy back a product by consumers.

Faradiba and Astuti (2013) also stated that product quality has a positive effect on repurchase decisions. Whereas from the research conducted by Bakator and Petrović (2016), product quality has a negative effect on product purchasing decisions and research from Yulisetiari et al. (2011) states that product quality has no significant effect on consumer repurchase decisions. But research conducted by Dewi et al. (2015) sharpens the results of research that states the influence of product quality on repurchase decisions even with an intermediate variable. The study obtained results that state product quality indirectly affects consumers' repurchasing interest in fish products in the Semarang region with mediated purchasing decisions.

Previous research related to after-sales service for repeat purchase decisions is as follows: Boyd et al. (2000) say after-sales service is one dimension of consumer consideration in making purchasing decisions before dropping to choose products that suit their needs and desires. According to Levitt in Diyah et al. (2013) argue that product sales with the adoption of sophisticated technology depend on the quality of the product itself and the accompanying after-sales service. In buying a product, consumers expect all goods purchased can be followed by good after-sales service (Isaac et al. (2013). This indicates a significant influence between after-sales service on purchasing decisions, as expressed in Ruusen's research (2014), Saidin et al. (2015) and Kriswandari (2010). Besides that, Bayhaqi's (2006) research also emphasizes that service quality also has an indirect positive effect on consumers' buying interest with customer satisfaction as its mediating variable. Wijaya's (2019) research results confirmed the results obtained in the study of Ranjbarian et al., which states that after-sales services have a significant positive effect on repurchase intention through customer satisfaction, indicating that consumers' repurchasing interest can be improved through good after-sales service to produce high satisfaction in consumers.

RESEARCH FRAMEWOK

Based on the background and the description of the previous research, this study looks at how the influence of each independent variable namely brand image (X1), product quality (X2) and after-sales service (X3) on purchasing decisions (Y). For more details, we can see the relationship between independent variables and the dependent variable in Figure 2.

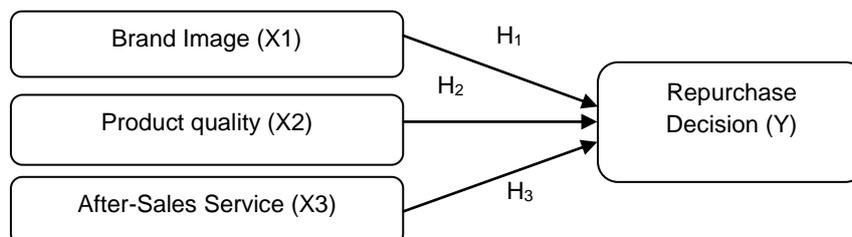


Figure 2 – Research Framework

Research hypothesis:

H₁: Brand Image has a positive effect on repurchase decision;

- H₂: Product quality has a positive effect on repurchase decision;
H₃: After-sales service has a positive effect on repurchase decision.

METHODS OF RESEARCH

The research to obtain data was carried out in November - December 2018 at Samsung service center outlets in the Special Region of Jakarta area (East Jakarta, North Jakarta, Central Jakarta, South Jakarta and West Jakarta).

This research is a quantitative description research conducted by the survey method approach. This survey method is carried out through the distribution of structured questionnaires to consumers or users of Samsung smartphone who are willing to be the respondents in this study. The questionnaire was given directly to respondents in Samsung service outlets located in Special Region of Jakarta area. Respondents are Samsung smartphone consumers or users and have done Samsung after-sales service at least once.

The data source in this study consisted of primary data and secondary data. Primary data obtained from the results of questions and statements of respondents through questionnaires. Questionnaires given to respondents contain closed types of questions (structured) so that respondents are limited in the space giving answers to alternative answers that have been provided. The answers to structured questions of respondents used the Likert scale (Summated Rating Scale). Likert scale is used to measure preferences, opinions and perceptions of a particular person or group of people about social events or symptoms, and besides that Likert scale is a psychometric scale that is commonly used in scale questionnaires which are most widely used in research in the form of surveys (Sugiyono 2012). Secondary data was obtained from the Annual report of Samsung, literature studies, articles, internet and other publications related to the research.

The sampling method is done by non-probability sampling techniques through a convenience sampling approach. Sumarwan et al. (2015) stated that non-probability sampling technique means that in determining the sample (example) no opportunity is needed so that the data generated only applies to people who are respondents to the study. Convenience sampling is chosen based on the consideration of the convenience of the researcher in getting the data he wants to obtain. According to Sugiarto et al. (2003) convenience sampling is sampling that is based on the availability of elements and the ease of obtain. Determination of the number of samples in this study amounted to 100 people which refers to the theory of Hair et al. (2006) that the use of data analysis methods Structural Equation Modeling (SEM) the minimum number of samples is 100 people, for models that contain five constructs or less, with each variable consisting of more than three observed variables and high communalities. Respondents in this study were consumers who used Samsung smartphones in the Special Region of Jakarta area. The criteria of respondents in this study were: 1) At the time of the interview, the respondents involved actively used Samsung smartphones, 2) Respondents had done after-sales service at Samsung's service center outlets.

Demographic variables are variables that can reflect or explain the characteristics of the respondents. In this study the demographic variables used were gender, age, education, type of work and level of expenditure per month. Independent and dependent variables, measurement dimensions and indicators and statements in this study are shown in Table 1.

Data processing in this study was carried out with several analyzes. The analysis in question includes Descriptive Analysis and analysis using Structural Equation Modeling-Partial Least Square (SEM-PLS) which is processed using SmartPLS 2.0 Software. Descriptive analysis is intended to explain the demographic characteristics of respondents, while analysis using SEM-PLS is intended to explain the relationship between the variables studied. But before the data is processed and analyzed using SEM-PLS, validity test and level of consistency (reliability test) must be done on the questionnaire which is the measurement tool in this study.

Table 1 – Variables and research dimensions

Variables	Dimension	Indicators	Statement
Exogenous Latent Variable			
Brand Image (X1)	Corporate Image	CI1	Samsung smartphones are a memorable brand
		CI2	Samsung smartphones are well-known brand
	User Image	UI1	Having a Samsung smartphone makes me proud
UI2		Samsung smartphones are brands that reflect high social status	
	Product Image	PI1	Samsung mobile phones have clear product characteristics
		PI2	Samsung smartphone products give a positive impression on consumers
		PI3	Samsung smartphones are easy to use
Product Quality (X2)	Performance	PF1	Samsung smartphones have high-quality operating system performance
		PF2	Samsung smartphones are equipped with the latest and sophisticated features
	Features	FT1	Samsung smartphones are comfortable when used
		FT2	The operation of the Samsung smartphone is relatively easy
		FT3	Samsung smartphones have good camera resolution
	Realibility	RL1	Samsung smartphones have good quality in the hardware sector
		RL2	Samsung smartphones have good quality in the software sector
	Durability	DR1	Samsung smartphones have long lifetime usage
		DR2	Samsung smartphones have a long-lasting battery quality
	Aesthetics	AS1	Samsung smartphones have a unique design
		AS2	Samsung smartphones have a variety of attractive colors
	Service ability	SA1	Samsung has the speed and accuracy in services
		SA2	Completeness of spare parts availability
		SA3	Friendly and fast service at Samsung Service Center
		SA4	Samsung provides a call center that can be contacted at any time
	Perceived quality	PQ1	Samsung smartphones give a high self-image to users
		PQ3	Samsung smartphones are good quality
		PQ4	Samsung smartphones have specifications that consumers want
	Confronmance	CF1	Samsung smartphones have good functional benefits such as for telephones / sending short messages
CF2		Samsung smartphones have benefits in accessing internet / email / youtube / online games	
After-Sales Service (X3)	Warranty	GR1	Samsung is fast and responsive to warranty claims
		GR2	Samsung can fulfill its promise of warranty claims in accordance with the applicable terms and conditions
		GR3	Samsung makes it easy for consumers to access the repair and compensation services
	Aplication assistance	BA1	Samsung provides services in the form of an easy-to-use mobile phone application
		BA2	Samsung smartphones have applications that can make it easier for users to get the applications they need
	Customer service	CS1	Service center service is good
CS2		Samsung serves all customer needs	
Endogenous Latent Variable			
Purchase Decision (Y)		KPU1	I decided to re-buy a Samsung smartphone for the next purchase
		KPU2	I will be loyal to using Samsung mobile phone products
		KPU3	I will recommend Samsung smartphone products to others

RESULTS AND DISCUSSION

This study involved 100 respondents in accordance with predetermined characteristics, namely respondents as Samsung brand smartphone users and had done the brand after-sales service in the past year. Sampling of respondents (interviews) was carried out in several official Samsung outlets in the Special Region of Jakarta area. Demographic aspects of the respondents described in this study include gender, age, education level, type of work, and level of expenditure per month. Distribution of characteristics of respondents can be seen as complete in Table 2.

Samsung smartphone usage behavior referred in this study will further discuss the Samsung smartphone consumer's own behavior which includes the period of Samsung smartphone usage, reasons for respondents in Samsung smartphone selection, reasons respondents to continue to use Samsung smartphones and Samsung smartphone after-sales service user behavior. The behavior of Samsung smartphone users is more clearly seen in Table 3.

PLS is an alternative approach that shifts from a covariant SEM-based approach to a variant-based SEM (Ghozali 2006). SEM based on covariance generally tests causality while PLS is more predictive model. Jogiyanto and Willy (2009) stated that in modeling with

prediction purposes, it can be done without a strong theoretical basis, and can ignore a number of (non-parametric) assumptions and the accuracy parameters of predictive models can be seen from the R-square. In forming the PLS model as a whole, we must first test the evaluation of the measurement model (outer model) by testing convergent validity, discriminant validity and composite reliability and evaluating structural models by looking at the R-square value for each endogenous latent variable, as predictive power from structural model.

Table 2 – Distribution of respondents based on the characteristics of respondents

Charateristics	Catagories	Respondents (%)	Charateristics	Catagories	Respondents (%)
Gender	Man	52	Occupation	Household Mothers	17
	Women	48		Students	6
Total	100	State-owned enterprise employees		8	
Age	< 20 years	4		Private employees	50
	20 - 30 years	47		Entrepreneur/ Professional	15
	31 - 40 years	25		Others	4
	41 - 50 years	20	Total	100	
	> 50 years	4	IDR 1.000.001 - IDR 2.000.000	9	
Total	100	IDR 2.000.001 - IDR 3.000.000	23		
Education	High school / equivalent	56	IDR 3.000.001 - IDR 4.000.000	21	
	Associate Degree	12	IDR 4.000.001 - IDR 5.000.000	21	
	Bachelor Degree	27	IDR > 5.000.000	26	
	Post-graduate Degree	5	Total	100	
	Total	100			

Table 3 – Behavior of Samsung smartphone users

Consumers Behavior	Categories	n (%)	Consumers Behavior	Categories	n (%)
Number of Samsung smartphone ownership	1 piece	43	Place to do the service	Official Samsung store	3
	2 pieces	37		Samsung official service center	93
	3 pieces	10		Common mobile phone counters	4
	> 3 pieces	10		Total	100
Total	100	Cost range for after-sales services	Free	21	
Alasan Pembelian <i>smartphone</i> Samsung Reasons for Purchasing a Samsung smartphone	Follow the trend		9	IDR 50.001 - IDR 100.000	26
	Affordable prices		15	IDR 100.001 - IDR 200.000	17
	Good brand image		13	> IDR 200.000	36
	Samsung brand popularity		29	Total	100
Total	100	Reasons for still choosing Samsung smartphones	Product sophistication	35	
Frequency of using after-sales services	1 time		81	Product strength and durability	33
	2 times		15	Ease of repairs (service)	15
	3 times		3	Product display	10
	> 3 times	1	Popular brand	7	
Total	100	Total	100		
Use of servive services other than Samsung official service center	Never	87			
	Yes	13			
Total	100				

n = respondents

According to Hair et al. (2010) latent variables cannot be measured and observed directly, but are measured through one or more indicator variables. The size of the correlation between indicators and latent variables can be known through the calculation of load factors (loading factors):

- Convergent Validity; in this study, there is an outer loading value that shows a number <0.7 the calculation must be done several times until all indicators get the

value of outer loading ≥ 0.7 and can be seen in Figure 3 on the results of loading factors;

- Discriminant Validity; in the reflective measurement model the indicator is assessed based on the value of AVE (Average Variance Extracted), the value must be greater than 0.5. The results of discriminant validity can be seen in Table 4;
- Composite Reliability; is a reliability test in PLS where the results show the level of accuracy, consistency of the accuracy of a tool (questionnaire) in making measurements. Composite reliability is considered good if it has a value of more than 0.7. Composite reliability can be seen in Table 4.

Table 4 – Discriminant validity and composite reliability test results

Dimintions/indicators	AVE (> 0.5)	CR (> 0.7)	Dimintions/indicators	AVE (> 0.5)	CR (> 0.7)
Corporate Image	0.81940	0.90073	Aesthetics	0.75240	0.85851
User Image	0.84375	0.91525	Preceived Quality	0.68088	0.81008
Product Image	0.65359	0.84957	Service Ability	0.67508	0.86169
Performance	0.74649	0.85477	Warranty	0.78938	0.91828
Features	0.72106	0.83772	Application Assistance	0.74159	0.85063
Conformance	1.00000	1.00000	Customer Service	0.87648	0.93418
Realibility	0.81471	0.89788	Repurchase Decision	0.70323	0.87663
Durability	0.76188	0.86474			

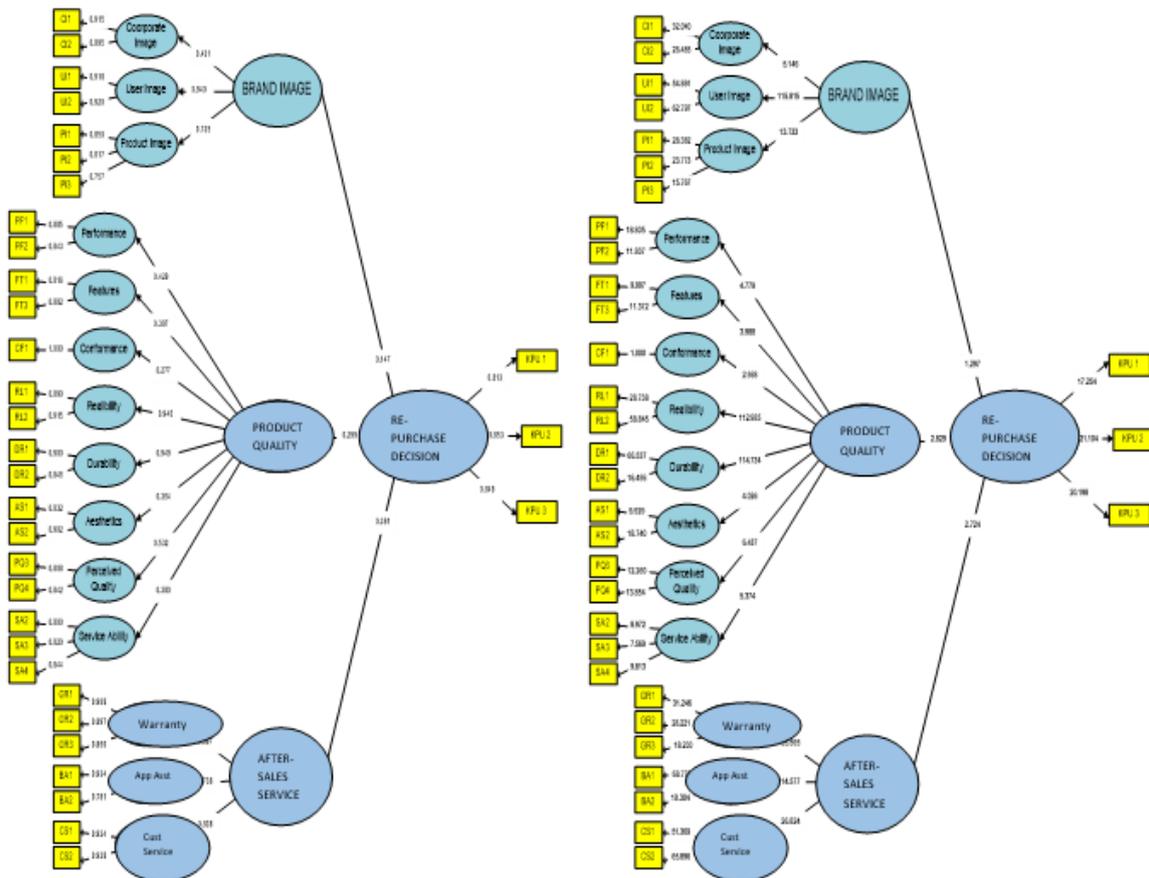


Figure 3 – Results of loading factor (left) and t-count (right) in the analysis of the SEM-PLS model

The structural model (inner model) describes the hypothesis that has been built in this study which will then be tested against the hypothesis. The results of the SEM-PLS model in this study can be seen in Figure 3. Simamora (2005) states that the hypothesis is a statement which at the time of disclosure is unknown, but allows it to be tested in empirical reality. Evaluation of Goodness of fit on the inner model can be measured using R-square dependent latent variables and using Q-square predictive relevance for structural models

(Latan and Ghazali 2012). Q2 is used to measure how well the observation value generated by the Q-square model must be greater than zero (> 0), which indicates that the model has a good predictive model ability (Hair et al. 2010). The results obtained in this study using the PLS method and using software support SmartPLS M2.0.

The R-square result obtained is 0.47175. This gives the meaning that the model of this study is the decision to repurchase Samsung smartphones can be explained by independent variables (brand image, product quality and after-sales service) of 47.2% and the remaining 52.8% explained by other variables outside of the model studied. The acquisition of the R-square value is then entered into the Q-square equation to determine the magnitude of the prediction model that can be done. Based on the calculation results obtained by the Q-square value, amounting to 0.222784 (0.223).

The hypothesis test is used to test the effect of partially exogenous variables (X) on endogenous variables (Y) by looking at the t-values in each path. The inner weight coefficient value of the structural model is said to be significant or the hypothesis is declared significant and has a direct effect, if the value of the path coefficient obtained is positive and the t-count value is greater than the t-table value (1.96) with a 95% confidence level.

Table 5 – Results of hypothesis test

Hypotesis	Coefficient inner weight	[t-hit]	Conclusion
Brand image → Repurchase decision ⁽⁺⁾	0.147	1.296	H1 denied
Quality product → Repurchase decision ⁽⁺⁾	0.299	2.829*	H2 accepted
After-sales service → Repurchase decision ⁽⁺⁾	0.391	2.724*	H3 accepted

**) shows t-value > 1.96 or significant. (+) shows a positive relationship.*

Based on the results of testing the hypothesis, it can be seen that the brand image has a positive coefficient value but the t-count value is smaller than t-table (1.96), which means that it is not significant. This indicates that there is no influence between the brand image to make decision to buy Samsung smartphones. This result is in line with the research conducted by Arista and Astuti (2011), Bloemer et al. (1998) which state that the brand does not have a direct positive effect on consumer purchasing decisions and loyalty, and Hanzaae and Farsani (2011) who obtained the results of the study did not have an indirect relationship between brand image of consumer purchasing decisions, even through satisfaction.

Samsung smartphone consumers have more confidence in the reliability and durability of these products, believe the product quality and believe the quality of after-sales services that they provide, which is like warranty. It is known from the respondents' answers to the question of product quality and after-sales service, so that it can be concluded that the brand image indicator, corporate image, user image and product image is not a guarantee to brand image for repurchase Samsung smartphones.

Based on the results of testing the hypothesis, it can be seen that the brand image has a positive coefficient value but the t-count value is smaller than t-table (1.96), which means that it is not significant. This indicates that there is no influence between the brand image of the decision to buy Samsung smartphones. This result is in line with the research conducted by Arista and Astuti (2011), Bloemer et al. (1998) which states that the brand does not have a direct positive effect on consumer purchasing decisions and loyalty, and Hanzaae and Farsani (2011) who obtained the results of the study did not have an indirect relationship between brand image of consumer purchasing decisions, even through satisfaction.

Samsung smartphone consumers have more confidence in the reliability and durability of these products, believe in product quality and believe in the quality of after-sales services that they provide, which is like warranty. It is known from the respondents' answers to the question of product quality and after-sales service, so that it can be concluded that the brand image indicator, corporate image, user image and product image is not a guarantee to brand image for repurchase Samsung smartphones.

The results of testing the hypothesis related to the quality of the product to repurchase decision obtain significant results. This indicates that product quality has an effect on repurchase decisions. This research is in line with research conducted by Chowdhury (2017)

which states that product quality influences repurchase decisions and there are eight dimensions of product quality (serviceability, conformance, aesthetic, perceived quality, reliability, features, performance and durability) that are considered by customers before or after choosing a brand from a particular smartphone. Good product quality, easier to create impressions and interests with consumers, which consumers will feel suitable with the model and size/features provided by the brand and tend to be lazy to find or replace with other brands that do not necessarily provide models or features that according to consumer tastes (Devi and Sugiharto 2017). This causes the better quality of the product offered, the greater the percentage of consumers to make a decision to repurchase the product (smartphone) from the brand.

MANAGERIAL IMPLICATIONS

Based on the research and analysis that has been done using SEM-PLS to analyze the effect of brand image, product quality and after-sales service on Samsung smartphone repurchase decision, managerial implications are obtained as follows:

Table 6 – Managerial implications

Variables	Managerial Implications
Product Quality	Quality aspects of product durability by maintaining and improving the quality of long-lasting batteries and the durability of Samsung smartphones. Product reliability aspects by maintaining and improving the quality of the hardware and software sector of Samsung smartphones. Improve product quality (smartphone) by paying attention to the characteristics and specifications of users with the help of appropriate new technology.
After-Sales Service	Samsung companies pay special attention to smartphone users in their responsive reactions and easy access to services in making warranty claims on the products they have. Improve after-sales service of Samsung smartphones by improving service center services in every authorized Samsung store and serving all the needs of users (consumers) with excellence.

CONCLUSION AND SUGGESTIONS

The conclusion of this study is that Samsung consumers or smartphone users are in the middle class social level that is active in the use of mobile phones in everyday life. Product quality and after-sales service influence repurchase decision, while brand image has no effect on Samsung smartphone repurchase decision. Based on the results of the study, the managerial implications for Samsung as a producer are to maintain the quality of durability (product life span, product durability) and reliability (related to the product functioning well in a period of time and under certain conditions) Samsung smartphone products and giving special attention to smartphone users in easy access make warranty claims about the products they have.

Based on the results of the analysis and conclusions outlined above, the suggestions that the research proposes are in the form of further research to develop new research models using different variables from this study or can also analyze the relationship between exogenous variables in this study. This research is also limited to the perceptions of consumers who have carried out after-sales services on Samsung smartpone products, so that further research can be carried out to analyze the consumers of Samsung smartphones as a whole or can be for new prospective customers.

REFERENCES

1. Aaker DA, Biel AL. 1993, Brand Equity & Advertising: Advertising's Role in Building Strong Brands. New Jersey: Lawrence Erlbaum Associates, Inc
2. Arista ED, Astuti SRT. 2011. Analisis pengaruh iklan, kepercayaan merek and citra merek terhadap minat beli konsumen. Jurnal Aset. 13(1): 37-45.

3. Ain N, Ratnasari RT. 2015. Pengaruh citra merek melalui sikap konsumen terhadap niat beli ulang pada produk busana muslim zoya di Surabaya. *Jurnal Ekonomi Syariah Teori and Terapan*. 2(7): 553-569
4. Assael H. 1998. *Customer Behavior and Marketing Actions*. ED ke-2. New York (US): International Thomson Publishing.
5. Bakator M, Petrović N. 2016. Correlation between Marketing Strategy, Product Quality and Promotion on the Mobile Devices Market in Serbia. *Journal of Engineering Management and Competitiveness*. 6(2): 67-74.
6. Bayhaqi Y. 2006. Analisis Pengaruh Kualitas Layanan and Keunggulan Produk terhadap Kepuasan Pelanggan and Dampaknya Pada Minat Membeli Ulang (Studi kasus: Auto Bridal Semarang) [thesis]. Semarang (ID): Universitas Diponegoro
7. Bloemer J, de Ruyter K, Peeters F. 1998. The relationship between store image, store satisfaction and store loyalty. *European Journal of Marketing*. 32(5/6): 499-513.
8. Boyd HW, Walker OC, Larreche JC. 2000. *Manajemen Pemasaran Suatu Pendekatan Strategis dengan Orientasi Global*. Translated by Imam Nurmawan. Ed ke-2. Jakarta (ID): Erlangga
9. Chen HS, Hsieh T. 2011. A Study of Antecedents of Customer Repurchase Behaviors in Chain Store Supermarkets. *The Journal of International Management Studies*. 6(3): .1-11
10. Chowdhury SR. 2017. Measuring the Relationship between Product Quality Dimensions & Repurchase Intention of Smart Phone: A Case study on Chittagong City. *International Journal of Scientific & Engineering Research*. 8(2): 1031-1040
11. Devaraj S, Matta KF, Edward C. 2001. Product and service quality: the antecedents of customer loyalty in the automotive industry. *Production and Operations Management: Winter*. 10(4): 424
12. Devi S, Sugiharto S. 2017. Pengaruh Product Quality and Retail Service Quality terhadap Repurchase Intention dengan Customer Familiarity sebagai Variabel Intervening pada Store Zara di Surabaya. *Jurnal Strategi Pemasaran*. 4(2): 1-8.
13. Dewi DR, Magdalena MM, Dhiana P. 2015. Pengaruh Word of Mouth, Tingkat Pendapatan and Kualitas Produk terhadap Keputusan Pembelian yang Berdampak pada Minat Beli Ulang Konsumen (Studi kasus pada produk Bandeng Juwana Elrina Semarang). *Journal of Management*. 1(1): 1-19
14. Diyah SM, Arifin Z, Yaningwati F. 2013. Pengaruh Pelayanan Purna Jual Terhadap Keputusan Pembelian. *Jurnal Administrasi Bisnis*. 3(2): 1-9.
15. Engel JF, Blackwell RD, miniard PW. 1995. *Perilaku Konsumen*. Jilis 2. Ed ke-6. Budiyanto FX, translator. Jakarta (ID): Binarupa Aksara. Translated from: *Customer Behavior*.
16. Evans JR, Laskin RL. 1994. The Relationship Marketing Process: A Conceptualization and Application. *Industrial Marketing Management*. 23(5): 439-454.
17. Faradiba, Astuti SRT. 2013. Analisis Pengaruh Kualitas Produk, Harga, Lokasi and Kualitas Pelayanan Terhadap Minat Beli Ulang Konsumen. *Diponegoro Journal of Management*. 2(3): 1-11
18. Garvin DA. 1987. Competing on the Eight Dimensions of Quality. *Harvard Business Review*. 65(6):101-109.
19. Hadi MI. 2015. Pengaruh Ekuitas Merek and Kepuasan Pelanggan Terhadap Loyalitas Smartphone Samsung di UMY. *Prosiding Interdisciplinary Postgraduate Student Conference*. [Working paper]. 277-286
20. Hair Jr JF, Black WC, Babin BJ, Anderson RE, Tatham RL. 2006. *Multivariate Data Analysis*. Ed. Ke-6. New Jersey (US): Prentice Hall.
21. . 2010. *Multivariate Data Analysis*. Ed. Ke-7. New Jersey (US): Pearson Education.
22. Hanzae KH, Farsani FT. 2011. The Effects of Brand Image and Perceived Public Relation on Customer Loyalty. *World Applied Sciences Journal*. 13(2): 277-286.
23. Huang Y, Lee K, Chan W. 2011. An Empirical Study of Consumer's Repurchase Intention of Tablet PC. *International Conference on Computer Science & Education*. 1(1): 166-171.

24. Iriani SS, Tunjungsari RH. 2015. Pengaruh Brand Extension, Kualitas Produk, and Layanan Purna Jual Terhadap Keputusan Pembelian Asus Smartphone. *Jurnal Riset Ekonomi and Manajemen*. 15(2): 212-232.
25. Isaac L, Adeyemo SA, Ogunleye PO. 2013. Impact of After Sales Service on Consumer Satisfaction and Retention. A Study of LG Electronics in Ibadan, Nigeria. *Journal of Business and Management*. 11(4): 54-58
26. Iskandar D. 2015. Pengaruh Service, Product Quality and Perceived Value terhadap Kepuasan and Repurchase Konsumen Kedai Sop Buah Durian Lodaya di Bogor [thesis]. Bogor (ID): Institut Pertanian Bogor.
27. Isyanto P, Eman, Herligiani. 2012. Pengaruh Kualitas Produk Terhadap Keputusan Pembelian Handphone Blackberry Pada Mahasiswa Ekonomi Universitas Singaperbangsa Karawang. *Jurnal Manajemen* 9(4): 854-862.
28. Jogiyanto, Willy A. 2009. Konsep and Aplikasi PLS (Partial Least Square) untuk Penelitian. Yogyakarta (ID): Andi Offset
29. Junaidi. 2016. Ada Kejanggalan, Layanan Service Centre Ponsel Mengecewakan. Tersedia pada: <https://m.detik.com/news/suara-pembaca/d-3374817/ada-kejanggalan-layanan-service-center-ponsel-mengecewaka>
30. Keller KL. 2008. *Strategic Brand Management Building, Measuring and Managing Brand Equity*. Ed ke-3. New Jersey (US): Pearson.
31. Kotler P. 2009. *Manajemen Pemasaran*. Jakarta (ID): Erlangga
32. Kotler P, Armstrong. 2008. *Prinsip-Prinsip Pemasaran*. Jakarta (ID): Erlangga.
33. Kriswandari S. 2010. Influence of Services on Consumer Satisfaction at PT. Tunas Dwipa Matra in Lampung. *Jurnal Manajemen and Bisnis*. 1(1): 50-67.
34. Kurniawan I, Santoso SB, Dwiyanto BM. 2010. Analisis Faktor-Faktor yang Mempengaruhi Minat Beli Ulang Produk serta Dampaknya terhadap Loyalitas Pelanggan. *Jurnal Studi Manajemen & Organisasi*, 4(2): 27-42
35. Latan H, Ghozali I. 2012. Partial Least Squares Konsep, Teknik and Aplikasi SmartPLS 2.0 M3 untuk Penelitian Empiris. Semarang (ID): Badan Penerbit Universitas Diponegoro.
36. Lin CC, Wu HY, Chang YF. 2011. The critical factors impact on online customer satisfaction. *Procedia Computer Science*. 3(2011): 276-281.
37. Lin NH, Lin BS. 2007. The Effect of Brand Image and Product Knowledge on Purchase Intention Moderated By Price Discount. *Journal of International Management Studies*. 121-132.
38. Meutia R. 2017. Pengaruh Brand Extension, Kualitas Produk and Layanan Purna Jual terhadap Keputusan Pembelian Asus Smartphone di Kota Kuala Simpang. *Jurnal Manajemen and Keuangan*. 6(1): 700-709
39. Paramananda N, Sukaatmadja IPG. 2018. The Impact of Price Perception and Brand Image on Customer Satisfaction and Repurchase Intention. *International Journal of Economics, Commerce and Management*. 6(10): 212-224
40. Rangkuti F. 2004. *The Power of Brand*. Jakarta (ID): PT Gramedia Pustaka Utama
41. Ranjbarian B, Sanayei A, Kaboli MR, Hadadian A. 2012. An Analysis of Brand Image, Perceived Quality, Customer Satisfaction and Re-purchase Intention in Iranian Department Stores. *International Journal of Business and Management*. 7(6): 40-48.
42. Roberts PW, Dowling GR. 2002. Corporate Reputation and Sustained Superior Financial Performance. *Strategic Management Journal*. 23(1): 1077-1093.
43. Ruusen FP, Adolfina, Ogi I. 2014. Kualitas Pelayanan, Promosi and After Sales Service Pengaruhnya terhadap Kepuasan Konsumen Sepeda Motor Honda PT. Nusantara Surya Sakti di Amurang. *Jurnal Riset Ekonomi, Manajemen, Bisnis and Akutansi*. 2(4): 1603-1613.
44. Saidin ZH, Mokhtar SSM, Saad R, Yusoff RZ. 2015. Automotive After-Sales Service Quality and Relationship Quality in Malaysian National Car Makers. *International Academic Research Journal of Business and Technology*. 1(2): 71-78.
45. Schiffman LG, Kanuk LL. 1997. *Consumer Behaviour*. Ed ke-6. Prentice Hall. New Jersey.
46. Setiadi NJ. 2003. *Perilaku Konsumen: Konsep and Implikasi untuk Strategi and*

- Penelitian Pemasaran. Jakarta (ID): Kencana.
47. Simamora B. 2005. Analisis Multivariat Pemasaran. Jakarta (ID): PT Gramedia Pustaka Utama.
 48. . 2008. Panduan Riset Konsumen. Cetakan ketiga. Jakarta (ID): PT. Gramedia Pustaka Utama.
 49. Singh M. 2013. Product Quality for Competitive Advantage in Marketing. *International Journal of Business and Management Invention* 2(6): 05-08.
 50. Sugiarto, Dergibson S, Lasmono TS, Deny SO. 2003. Teknik Sampling. Cetakan ke-2. Jakarta (ID): PT Gramedia Pustaka Utama.
 51. Sugiyono. 2012. Metode Penelitian Bisnis. Bandung (ID): Alfabeta
 52. Sumarwan U, Daryanto A, Achsani NA, Fahmi I, Nuryanto N, Suhendi, Samputra PL, Sijabat FDV, Tobing A, Kristiadi A. 2015. Metode Riset Bisnis and Konsumen. Bogor (ID): IPB Press.
 53. Sun SY, Chen LS, Huang HC. 2014. Social Cognition and The Effect of Product Quality on Online Repurchase Intention.
 54. Sundalangi M, Mandey SL, Jorie RJ. 2014. Kualitas Produk, Daya Tarik Iklan and Potongan Harga terhadap Minat Beli Konsumen Pada Pizza Hut Manado. *Jurnal Riset Ekonomi Manajemen Bisnis and Akuntansi*, 2(1): 313-324
 55. Susanto H. 2016. The Effect of Brand Image, Product Quality and Price toward Purchase Decision (Empirical Study on Consumer Cv. Rown Division in Surakarta) [tesis]. Surakarta (ID): Universitas Muhammadiyah Surakarta.
 56. Tarmizi A. 2016. Pengaruh pelayanan purna jual terhadap keputusan pembelian konsumen pada PT Jaya Indah Motor Cabang Jambi. *Jurnal Ilmiah Universitas Batanghari Jambi*. 16(3): 115-121
 57. Tjiptono F. 2008. Strategi Pemasaran. Ed ke-3. Yogyakarta (ID): Penerbit Andi.
 58. Tjiptono F, Chandra G. 2012. Pemasaran Strategik. Yogyakarta (ID): Penerbit Andi.
 59. Wijaya HR, Astuti SRT. 2018. The Effect of Trust and Brand Image to Repurchase Intention in Online Shopping. *International Conference on Economics, Business and Economic Education 2018*. [Working paper] *KnE Social Sciences*: 915–928.
 60. Wijaya Y. 2019. Pengaruh After-Sales Service terhadap Repurchase Intention melalui Customer Satisfaction sebagai Variabel Intervening di PT Damai Sejahtera Abadi (Ufo Elektronika) Surabaya. *AGORA*. 7(1): 1-7
 61. Wulansari A. 2013. Pengaruh Brand Trust and Perceived Quality terhadap Keputusan Pembelian Ulang Produk Sari Roti (Studi pada konsumen di Perumahan Gresik Kota Baru, Manyar Gresik). *Jurnal Ilmu Manajemen*. 1(2): 388-401.
 62. Yulisetiarni D, Subagio A, Paramu H, Irawan B. 2017. Customer Repurchase Intention and Satisfaction in Online Shopping. *International Business Management*. 11(1): 215-221.

DOI 10.18551/rjoas.2019-08.04

**THE EFFECT OF PERCEIVED ORGANIZATIONAL SUPPORT AND
TRANSFORMATIONAL LEADERSHIP STYLE ON EMPLOYEE PERFORMANCE
OF SURABAYA MUNICIPALITY'S EDUCATION SERVICE OFFICE**

Nugroho Domy Wahyu

Masters' Program of Human Resource Development, University of Airlangga, Indonesia

E-mail: domynugroho@gmail.com

ABSTRACT

The research intends to attest the Effect of Perceived Organizational Support and Transformational Leadership Style on Performance of employees of Surabaya Municipality's Office of Education Service. The survey was conducted with 103 employees at the Surabaya Municipality's Office for Education Service, consisting of 16 respondents of managerial level and 87 staffers. Hypothesis testing was done by means of hierarchical regression analysis with the help of SPSS version 25. From the results of testing the hypothesis that has been done, H_0 is rejected and H_a is accepted. This shows that perceived organizational support and transformational leadership style have a significant effect on employee performance in the Surabaya Municipality's Office of Education Service. The result of the research suggests that Perceived Organizational Support and Transformational Leadership Style effects employee performance of Surabaya Municipality's Office of Education Service. Advice for this research is the Surabaya Municipality's Office of Education Service should pay attention to the needs of employees in support of their work, the Organization must also support the values that the leaders have, and should be held training to Shape it.

KEY WORDS

Perceived organizational support, leadership style, performance, civil servants.

According to Rivai (2004:35), without proper support of employee's quality and quantity, strategies and operation, an organization will not be able to maintain its existence nor develop and advance in the future. The notion suggests that for an organization, the need for quality human resource is urgent. Human resource takes a crucial role in terms of global development that requires optimum public service. The low level of employee performance has been a challenge to the regional government.

The researcher observed data of employee performance of Surabaya Municipality's Office of Education Service. The office of education service is a municipal government level organization under Surabaya Municipality which organizes the city educational affairs services. The result of data observation on information of the City of Surabaya's last four years employee performance (e-performance) researcher indicates that 18 employees were considered to have lower performance during the period of 2015-2016, and 23 employees during the period of 2017-2018. Based on employee performance data of Surabaya Municipality's Office of Education Service, it is necessary for the organization to pay more intensive attention to such issues. Problems in employee performance will lead to low public service quality and consequently it will be difficult for the government organization to provide related excellent services. Poor governmental service will trigger complaints and as a result the organization's designated target is not guaranteed.

Due to the importance of the role of human resource, the organization is in a great need of employees with both high a trust to the organization and work comfort. The organization's success depends on its employee performance and therefore the organization is required to carefully manage its human resource. It is important for the organization to perceive the employee's need as a factor that influences their performance.

One influencing factor of performance is perceived organizational support (POS). In view of organizational support theory, it is stated that POS involves reciprocity norm which means that when an organization supports its employee, the latter will tend to appreciate and

respect the organization and contribute to the process of organizational goal achievement (Dawley, 2008). According to Rhoades and Eisenberger (2002:698), perceived organizational support (POS) is the employee's perception of the organization on how the organization appreciates their employees and cares about the latter's well-being. When employees consider organization support as high, the employee will perceive themselves a part of the organization and therefore give their best work performance.

Another factor that puts effect on employee performance and the organization's ability to adapt to the environmental changes is leadership (Bass et al, 2003; Locander et al., 2002 and Yammarino et al., 1993) in Mariam (2009). Ogbonna and Harris (2000) in Mariam (2009) conducted a research on leadership style, organizational culture and performance in some companies in United Kingdom and he came to the view that leadership style positively and significantly effects performance.

Based on issues found in Surabaya Municipality's Office of Education Service and comparison from past similar researches, the researcher was interested in testing the effect of perceived organizational support and leadership style on employee performance of Surabaya Municipality's Office of Education Service.

LITERATURE REVIEW

With regards to performance, Cascio (1995:275) has a view that that performance refers to an employee accomplishment of assigned tasks. Bernardin and Russel (1993: 378) define performance as the record of outcomes produced on a specified job function or activity during time period. Bernardin & Russel (1993) offer the following six criteria for assessing employee performance:

- Quality: ideal process and adaptation in doing or fulfilling the expected outcomes;
- Quantity: number of outputs made by employees or amount of job accomplished by employees;
- Timeliness: employee's punctuality in view of job completion;
- Cost effectiveness: employee's ability to make use and optimize organization's resources;
- Need for supervision: the level in which an employee is able to complete their job without the help from their supervisor;
- Interpersonal impact: employee's self-confidence with the drive for working in collaboration with other employees.

Perceived Organizational Support has been widely discussed by some experts. Pioneers of this view, Eisenberger et al. (1986) assume that Perceived Organizational Support is employees' perception about the degree to which the organization cares about the employees' well-being and value their contribution, to describe the social exchange relationship between the organization and its employees". Rhoades and Eisenberger (2002) further define Perceived Organizational Support as employees' perception on how the organization appreciates employees' contribution, cares and attends to the latter's well-being and the employees' perception on the organization's readiness to reward increased work performance and to meet socioemotional needs.

According to Rhoades and Eisenberger (2002), five indicators of Perceived Organizational Support are as follows:

- Organization's care of employee's opinion;
- Organization's care of employee's well-being;
- Organization's attention to employee's goals and values;
- Organization's readiness to help employees who have problem;
- Organization's to forgive employee's misconduct during work.

Hersey-Blanchard (1988) is of the view that leadership style is a behavior pattern practiced by an individual on a certain time which intends to influence other people's activities. Transformational leadership style is defined as a leadership style which attempts to gain better change for the sake of the organizational goals. Transformational leadership style

is characterized by how it attends to development and improved achievement of subordinates. The leader seeks to build trust among and support to his/her subordinates to elevate the latter's potentials. Such leadership style is characterized by the following four indicators:

- Idealized influence, which refers to the leader's charisma and idealism;
- Inspirational motivation, which refers to the leader's ability to create and give inspiration to their subordinates;
- Intellectual stimulation, which refers to the leader's action to challenge and trigger subordinates to start thinking in a critical and creative way while seeking their job-related solution;
- Individualized consideration, which refers to individual attention given by the leader to the subordinates to ensure subordinates' development.

The research hypotheses are as follows:

H_1 = Perceived Organizational Support affects Performance of employees of Surabaya Municipality's Office of Education Service.

H_2 = Transformational Leadership Style affects Performance of employees of Surabaya Municipality's Office of Education Service.

H_0 = No effect is found between Perceived Organizational Support and Transformational Leadership Style on employee performance of Surabaya Municipality's Office of Education Service.

METHODS OF RESEARCH

The research is descriptive in nature which is intended to describe and elaborate a multiple situations and variables which are the objective of the research. The design of the research is quantitative using survey method. The population consists of 138 employees of Surabaya Municipality's Office of Education Service, comprising of those of structural and general functional positions.

The research uses probability sampling technique with the following details of sample:

Table 1 – Sample Proportion

Positions	Population	Sample Proportion	Sample
Structural Position	21	16.67%	16
General Functional Position	117	83.33%	87
Total	138	100%	103

Table 2 – Operationalization Variables

Variable	Indicators
Perceived Organizational Support (X_1) Rhoades, et al (2001) in Chiang et al (2012)	Organization's care of employee's opinion.
	Organization's care of employee's well-being.
	Organization's attention to employee's goals and values
	Organization's readiness to help employees who have problem
	Organization's to forgive employee's misconduct during work
Gaya Kepemimpinan Transformational (X_2) Bass and Avolio (Fukushige & Spicer, 2007)	Idealized influence
	Inspirational motivation
	Intellectual stimulation
	Individualized consideration
Kinerja (Y) Bernardin and Russel (1993)	Quality
	Quantity
	Timeliness
	Cost Effectiveness
	Need for Supervision
	Interpersonal Impact

Data were collected by using a questionnaire featuring Likert measurement method in which each statement items is equipped with scores ranging from 1 to 5. Based on the

research design, here is the operationalization variables and research operational framework.

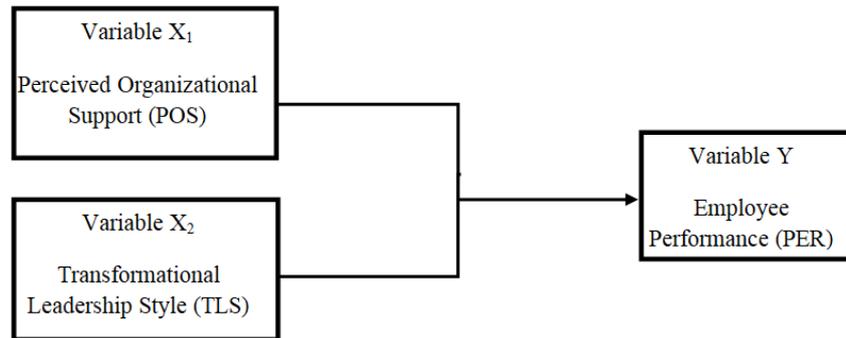


Figure 1 – Research Operational Framework

Upon completion of data collection, data processing was conducted. Data analysis is the process for simplifying data into a format which is easier for the readers to read and comprehend. Sugiyono (2007:306) states that within the quantitative research, the main criterion for research data is data validity and reliability.

In this research, the researcher uses multiple regression analysis which is a method to determine causal relations between one variable to another. The causal variable is called independent variable, or variable X, while the other variable is called dependent variable, or variable Y.

RESULTS AND DISCUSSION

In this research, validity test was done using Pearson Correlation Coefficient in which a statement is valid when it has a Pearson Correlation Coefficient of above 0.3. The result of validity test is as follows:

Table 3 – POS Validity Test

Questionnaire Statements	Pearson Correlation	Remarks
X1.1	0.781	Valid
X1.2	0.780	Valid
X1.3	0.665	Valid
X1.4	0.796	Valid
X1.5	0.759	Valid
X1.6	0.548	Valid
X1.7	0.697	Valid
X1.8	0.630	Valid
X1.9	0.828	Valid
X1.10	0.772	Valid
X1.11	0.612	Valid
X1.12	0.818	Valid
X1.13	0.824	Valid
X1.14	0.702	Valid
X1.15	0.762	Valid

Source: Primary data 2019 (Processed).

The above table shows that each of the 15 questionnaire statements for POS variable is valid. Based on Pearson correlation (r), all of the items with the value of above 0.3 are valid.

The table 4 shows that each of the 15 questionnaire statements for TLS variable is valid. Based on Pearson correlation (r), all of the items with the value of above 0.3 are valid.

Table 4 – TLS Validity Test

Questionnaire Statements	Pearson Correlation	Remarks
X2.1	0.800	Valid
X2.2	0.690	Valid
X2.3	0.807	Valid
X2.4	0.721	Valid
X2.5	0.652	Valid
X2.6	0.690	Valid
X2.7	0.740	Valid
X2.8	0.686	Valid
X2.9	0.606	Valid
X2.10	0.652	Valid
X2.11	0.608	Valid
X2.12	0.667	Valid

Source: primary data, 2019 (Processed).

Table 5 – Performance Validity Test

Questionnaire Statements	Pearson Correlation	Remarks
Y1	0.492	Valid
Y2	0.735	Valid
Y3	0.588	Valid
Y4	0.577	Valid
Y5	0.770	Valid
Y6	0.779	Valid
Y7	0.638	Valid
Y8	0.733	Valid
Y9	0.695	Valid
Y10	0.566	Valid
Y11	0.687	Valid
Y12	0.630	Valid
Y13	0.541	Valid
Y14	0.417	Valid

Source: Primary Data, 2019 (Processed).

The above table shows that each of the 14 questionnaire statements for performance variable is valid. Based on Pearson correlation (r), all of the items with the value of above 0.3 are valid.

Reliability test was done by using Cronbach's Alpha (α) statistic test which requires that the variable under research is regarded as reliable when Cronbach's Alpha (α) value is above 0.6. The following is the result of questionnaire reliability test used in the research:

Table 6 – Result of Reliability Test

Research Variable	Cronbach's Alpha (α)	Remarks
POS	0.935	Reliable
TLS	0.900	Reliable
Performance	0.870	Reliable

Source: Primary Data, 2019 (Processed).

Based on the result of reliability presented in the table, Cronbach's Alpha (α) value is 0.6 which confirms that the questionnaire is reliable. It means that the entire questionnaire consistently provides the same result or answer to the similar phenomenon despite the fact it is used several times.

Data analysis consists of some tests. The tests are undertaken to assess feasibility of data used in regression analysis. Classical assumption tests comprise of normality test, multicollinearity test, autocorrelation test and heteroscedasticity test. Result of tests using classical assumption of multicollinearity is as follows.

Normality test in this research requires that the regression model is considered to meet the assumption when the given data are found to be around and following the direction of the line, or else when the histogram graph show a normal distribution pattern. On the other hand, the regression model is not considered to meet the assumption when data are found to be away from and not in the direction of the diagonal line or when the histogram graph does not show a normal distribution (Ghozali, 2005:111-112). Result of normality test on this research is shown in the following graph.

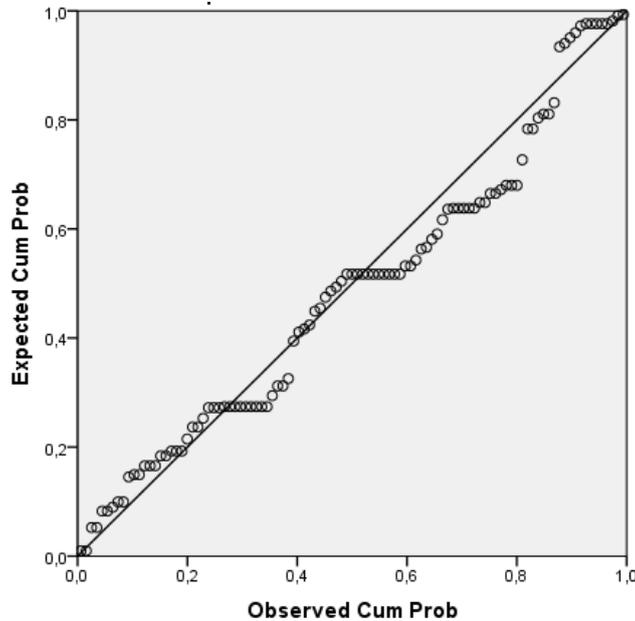


Figure 2 – Normality Test (Source: Processed data)

Based on the graph above, the data are found to be around the diagonal line and follow the direction of the line and therefore it suggests that the regression model in this research has met the normality requirement. The following is Kolmogorov-Smirnov normality test result with the significant value of 0.92, which is above 0.05 and therefore the data are normally distributed and meet the requirement for normality test.

Table 7 – Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		103
Normal Parameters ^{a,b}	Mean	0E-7
	Std. Deviation	.20923161
Most Extreme Differences	Absolute	.124
	Positive	.124
	Negative	-.062
Kolmogorov-Smirnov Z		1.260
Asymp. Sig. (2-tailed)		.084

a. Test distribution is Normal;

b. Calculated from data.

This test is intended to confirm if correlation of dependent variable is found in the regression model. No correlation of independent variable should be found in the regression model. To detect multicollinearity in regression model, the following values should be confirmed: (1) test result should have tolerance value of above (>) 0.1 and (2) test result should have VIF value of below (<) 10. Multicollinearity test result in the research is shown in the table 8.

Table 8 – Multicollinearity test

Coefficients

Model	Correlations			Collinearity Statistics	
	Zero-order	Partial	Part	Tolerance	VIF
(Constant)					
1 POS	.712	.343	.245	.337	2.971
TLS	.699	.293	.206	.337	2.971

a. Dependent Variable: PER.
Source: Processed Data.

The table shows that the tolerance value of the two variables, namely POS and LS are 0.337 and 0.337 respectively, while VIF values for the two variables are 2.971 and 2.971 respectively. Based on the data, referring to a tolerance value of above 0.1 and VIF value of below 10, it can be concluded that multicollinearity is found between variables and regression model. The data indicate that assumptions of multicollinearity have been confirmed.

The heteroscedasticity test is intended to confirm unequal variability of a variable across the range of values from one observation residual to another in the regression model. Graphic analysis is performed by means of scatterplot. Ghazali (2013:139) states the analysis for confirmation of heteroscedasticity can be best performed by observing the scatterplot in that:

- When a certain pattern such as consistent pattern of dots (wavy, extending or narrowing) is detected, then heteroscedasticity is there;
- When no clearly visible pattern is detected and in the event that dots are scattered above and below the number 0 on axis Y, then no heteroscedasticity is found.

The good model is when homocedasticity, rather than heteroscedasticity is found. The result of heteroscedasticity test in the research is shown below:

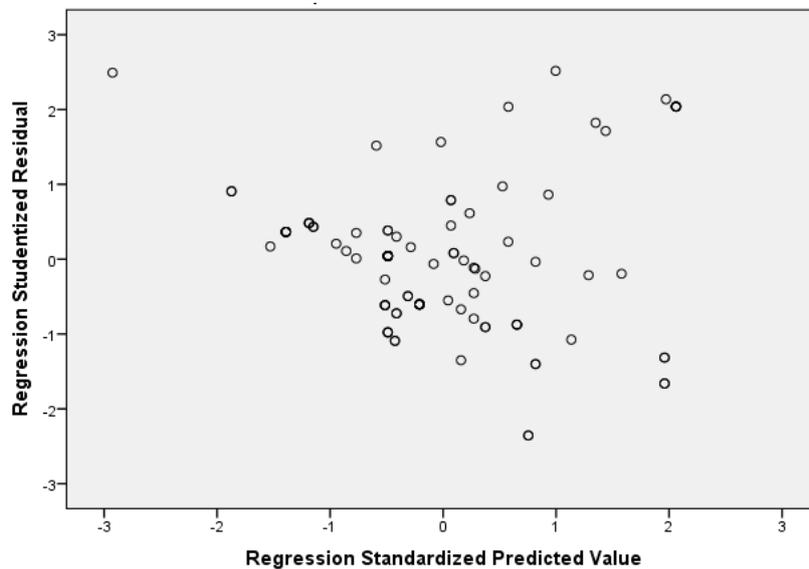


Figure 3 – Scatterplot (Dependent variable: PER; source: processed data)

The above graphs shows that no clear pattern is shown with dots scattered above and under 0 on axis Y and therefore it can be concluded that no heteroscedasticity is found and homocedasticity assumption is met.

Autocorrelation test is used to detect deviation of classical assumption of autocorrelation, namely correlation between residuals of one observation and another in

regression model. The regression model requires that no autocorrelation is found. The research used the most common related test method, namely Durbin-Watson (DW) test in which:

H₀: no correlation is found;

H₁: correlation is found.

Autocorrelation test is used to detect correlation degree of similarity between the values of items of observation or same independent variables over successive interval of times. If autocorrelation is found, then the model is considered to be less accurate for predicting. Durbin Watson (DW) statistics test is used to deect the autocorelation. Agustinus (2003) states that when DW value shows a figure of -2 and +2, then no correlation is found.

Table 9 – Autocorrelation Test

Model Summary^b

Model	Change Statistics			Durbin-Watson
	df1	df2	Sig. F Change	
1	2 ^a	100	,000	1,924

a. Predictors: (Constant), TLS, POS;

b. Dependent Variable: PER.

Source: Processed Data.

The tables shows a Durbin Watson value of 1.924 which lies between -2 and +2 (-2 < 1,926 < 2) and therefore it can be concluded that no autocorrelation is found the regression model.

Multicollinear regression analysis is used in this research to find the effect of POS and TLS on Performance.

Table 10 – Regression Analysis

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.638	.228		7.170	.000
POS	.307	.084	.423	3.662	.000
TLS	.281	.092	.355	3.073	.003

Source: Processed Data.

The model used in the multicollinear regression is as follows:

$$PER = 1.638 + 0.307POS + 0.281TLS + \epsilon$$

Where: PER = Performance; a = *Intercept* (constant); b₁ = Coefficient of POS predictor regression equality; b₂ = Coefficient of TLS predictor regression equality; e = Extraneous Variable (variable which are not controlled).

Interpretation of the regression model is as follows:

- Constanta (β₀) of 1.638 shows that if independent variable = 0, then dependent variable will be 1.638;
- POS coefficient value of 0.307 shows that if POS variable (X₁) is improved, it will result in improvement of Performance by 0.307 assuming that the other variable is constant;
- TLS coefficient value of 0.281 shows that if TLS variable (X₂) is improved, it will increase performance by assuming that the other variable remains constant.

CONCLUSION AND SUGGESTIONS

Conclusion of research on Perceived Organizational Support and Transformational Leadership Style on Employee Performance of Surabaya Municipality's Office of Education Service is as follows:

- Perceived Organizational Support positively and significantly affects the Employee Performance of Surabaya Municipality's Office of Education Service, which means that the higher the level of perceived organizational support the higher the level of employee performance. Higher perceived organizational support increases employee performance;
- Transformational Leadership Style positively and significantly affects employee performance of Surabaya Municipality's Office of Education Service, which means that better leadership style increases employee performance.

The result of research indicated that Perceived Organizational Support and Transformational Leadership Style variables positively and significantly affect employee performance of Surabaya Municipality's Office of Education Service. This is intended to improve employee performance and therefore it is necessary for the organization to pay more attention to the employee's need in support for better job performance. It is also necessary for the organization to evaluate their leaders and provide them with necessary training for better leadership quality.

REFERENCES

1. Bernardin, H. John and Russel. E.A. Joyce. 1993. Human Resource Management International Edition. Singapore: McGraw-Hill
2. Cascio, F., Weyne. 2003. Managing Human Resource; Productivity, Quality of Work Life, Profit. International Edition. Sixth Edition. Singapore: McGraw-Hill Inc.
3. Chun-Fang Chiang and Tsung-Sheng Hsieh. 2012. The impacts of perceived organizational support and psychological empowerment on job performance: The mediating effects of organizational citizenship behavior. *International Journal of Hospitality Management*. 31. 180–190
4. Dawley, D.D, Andrew, M.C, & Bucklew, N.S. 2008. Mentoring, Supervisor Support, and Perceived Organizational Support: What Matters Most? *Leadership and Organization Development Journal*, 29(3):370-380.
5. Eisenberger, R, Huntington, R., Hutchison, S., Sowa, D., (1986). Perceived Organizational Support, *Journal of Applied Psychology*, 71, 500-507
6. Fukushige, a., and Spicer, D. P. 2007. Leadership preferences in Japan: An Exploratory study. *Leadership & Organizational Development Journal*, 28), 508-530
7. Ghozali, Imam. 2005. Aplikasi Analisis Multivariate dengan SPSS. Semarang: Badan Penerbit UNDIP.
8. Ghozali, Imam. 2013. Aplikasi Analisis Multivariate dengan Program IBM SPSS 21 Update PLS Regresi. Semarang: Badan Penerbit Universitas Diponegoro.
9. Hersey, P. And Blanchard, K.H. 1988. Management of organizational behavior (5th. Ed.) pp 169-201. Englewood Cliffs, NJ: Prentice
10. Mariam, Rani. 2009. Pengaruh Gaya Kepemimpinan and Budaya Organisasi Terhadap Kinerja Karyawan Melalui Kepuasan Kerja Karyawan Sebagai Variabel Intervening Studi Pada Kantor Pusat PT.Asuransi Jasa Indonesia (Persero): Tesis. Universitas Diponegoro
11. Rhoades, L., and Eisenberger, R. 2002. Perceived Organizational Support: A Review of the Literature. *The Journal Of Applied Psychology*, 87, 698-714
12. Rivai, Veithzal, 2004. Manajemen Sumber Daya Manusia untuk Perusahaan, dari Teori ke Praktik. Jakarta: PT. Raja Grafindo Persada.
13. Sugiyono. 2007. Metode Penelitian Kuantitatif Kualitatif and R&D. Bandung: Alfabeta.

DOI 10.18551/rjoas.2019-08.05

PRESENCE OF WOMEN IN CONFLICT RESOLUTION EFFORTS IN AMBON, SOUTHWEST MALUKU REGENCY OF INDONESIA

Tiwery Weldemina Y.* , Patty Febby N.
State Christian Institute of Ambon, Indonesia
*E-mail: yudit.tiwery@iaknambon.ac.id

ABSTRACT

The existence of women's important role in the process of resolving the conflict in Ambon. They have been successfully organizing an interfaith meeting to reach an agreement of understanding and conflict resolution. The study was conducted in Ambon of Maluku province. This study uses a qualitative method with a case study approach. Data collected through observation, interviews, and documentation. The results of that research addressing the role of women actively engaged as a squad leader, and also preparing the logistics for the war. The emerging role as a spiritual and religious reaction. woman plays the role of "liaison" community, especially areas where Muslims and Christians live together and they provide a safe place for families. However, efforts to the demonstration of women demanding the termination of the conflict are not addressed. This happens because public awareness of gender is still hindered by the patterns of the traditional understanding of the position and role of women in society.

KEY WORDS

Conflict resolution, women, Ambon, public relations.

The problem of conflict in Indonesia is a social phenomenon that drew public attention. Forms of conflict have led to widespread social violence at various levels of society. As the conflict based on primordial example. Noted conflict the conflict has claimed thousands of lives and forcing no less than 13 million people have become refugees (Colombijn, 2002). Problems associated with identity (ethnicity, nationality, race, and religion) are often the cause of conflicts. The violent conflict in Maluku are mostly concentrated in Ambon is one of the most devastating conflicts that broke out after the fall of the Suharto regime. The conflict claimed nearly 5,000 lives from 1999 to 2002 and displaced a third of the population of Maluku and MalukuNorth (Brow, 2005). Reported after the riots, nearly 200 gangsters Ambon sent back to the Moluccas by the Indonesian Navy (Van Klinken, 1999).

Maluku conflict is often understood as the old hostility between Christians and Muslims have a complexity that is based on historical experience began the colonization period until the formation of the new order of social order. Strategic interests and economic factors are also often contributing to conflict. The conflict in Maluku since January 19, 1999 expired since June 2005 has brought the community in a peace process. According to Trijono (2000), the social conflict in Ambon is caused by the structure inherited from the past. The structure of inter-group relations was formed long ago in the past are still burned into the dynamics of the group now. In Ambon, religious communities play a role in how individuals and groups view themselves. Religion is very instrumental in the construction of identity and the basis for the group to behave.

Conflict efforts involving all elements from the government, religious leaders to women. This resolution conflict process proved the role of women, who are the perpetrators and also the recipient of the impact of the worst conflicts. The Maluku conflict has also led to community Maluku Muslim women, Catholics and Protestants formed Women's Forum Formally with the name of Concerned Women Movement (GPP), a joint forum of the first women in Maluku. In addition, women play an active role in efforts to create peace in Ambon. Interfaith meeting among refugee women not only ensures the distribution of emergency aid to the refugees, but also a place for reconciliation between Muslim and Christian women. Women's leadership in organizing interfaith meeting is an important achievement in the

Moluccas in conflict resolution efforts. Conflict studies and involvement of women in conflict resolution efforts is important. Therefore, the purpose of this study analyzes motif Conflict and role women in an effort to make the resolution of the conflict.

METHODS OF RESEARCH

This paradigm puts observation and objectivity in finding a reality or science (Denzin & Lincoln, 2000). Therefore, method this research using a descriptive qualitative method which has been successfully carried out in the city of Ambon. The location selection is done intentionally (purposive) for consideration as a city of Ambon city pluralistic and conflict, Data collected included primary data and secondary data. Primary data were obtained from the observation, in-depth interviews (in-depth interviews) and focus group discussions or focused group discussion (FGD). Secondary data were obtained from the Village Office, the Central Bureau Statistik, Office of population and previous research reports. Data analysis techniques of data collection, data analysis, data reduction, data presentation, and conclusion.

RESULTS AND DISCUSSION

Louis Kriesberg (1998) mention the origin of identity conflicts a long violent struggle by a communal group such as religious or ethnic recognition for security needs equal access to political institutions and economic participation. Cases of conflict background in Ambon can not be separated from rivalry in the race for public office then escalate into a religious conflict. The highlight of the Maluku conflict itself occurred in the 1999-2002 period that starts from the events of Bloody Maluku on January 19, 1999, which claimed many victims. The conflict itself has been resolved through the Malino I and II in 2002- 2003 represented public figures. The results of the analysis, there are three motives for conflict in Ambon. The first historical motif, where there are two religions that contest in the race for public office. Second, the dominance of one religion that threatens the existence of other religions with the inclusion of intelligent. Third, the riots. conflict is also fueled their religious segregation that occurred between the Muslims and Christians in Maluku that against the background of the weakening of the local leadership. The increasing number of migrants also influence the composition of the population based on religion. The issue of balance between the number of residents formed a communal security perception. The population of Muslims and Christians undergoing change, where the Muslim population increased compared to the population is Christian. in addition, migrants from ethnic Buton, Bugis.

Analysis of the position of women in the social conflict in Ambon approach cultural communication. Cultural communication approach trying to see and explore aspects of female culture in the face of conflict. In the tradition of the social sciences, conflict is a part of the social dynamics of the community(Suseno F 1999). Of course, there is always a characteristic unique uniqueness certain characteristics that are comparable between the conflict (Coleman, 2005). Understand culture will help mapping root causes of conflict and the involvement of women in the conflict arena. Ambon conflict involving women in certain positions and arena. At a certain position of women actively involved as a squad leader, and also prepare logistics for the men who fought. The emerging role as a spiritual and religious reaction, because the conflict in Ambon has been interpreted as a part of a "religious conflict". Emotionality residents appeared in a "defense of religion", and not humanity. During the conflict, women often play the role of "links" that connect the community. in areas where Muslims and Christians live together they provide a safe place for families during times of conflict. Ambon conflict put women and children as victims. The position of women as victims in social conflicts because they become a passive character, and only do the actions evacuation. The position of women has been subordinated by the patriarchal culture in times of conflict. Then women's access to information and the reconciliation agenda is limited or restricted, only for reasons of circumstances not conducive. The position of women as agents of reconciliation Maluku conflict seen two forms of activity, intentional (intended) And

unintentional (unintended) In the Maluku conflict resolution. The role of women intentional for reconciliation of the two communities can be seen from the existence of Concerned Women Movement.

Table 1 – Chronology of the conflict in Maluku

Year	Month	Chronological
1999	January	A small street fights rise to riots in Ambon city and surrounding areas.
	March	Mass violence spread to other islands in the Moluccas.
	May	The election campaign started and violence is reduced.
	June	General election
	July.	Mass violence starts again in Ambon city.
	October	North Maluku province separated from the province of Maluku.
	December	Silo conflict increased after the church burned and a massacre occurred in the Muslim village Tobelo
2000	May	May Laskar Jihad arrived in Ambon.
	June	June massacre in Galela near Tobelo in North Maluku. Police weapons were stolen and distributed to civil society.
	December	Maluku Sovereignty Front (FKM) declared the independence of the South Maluku Republic (RMS).
2001	January	Combined Battalion (Yongab) perform a "cleansing operation" with a target of Muslim militants.
	June	Yong performs "cleansing operations" other.
2002	February	Peace Agreement (Malino II) was signed.
	April	Maluku provincial government offices were burned. Soya village was attacked after the violence began to decrease in the Moluccas
	May	The leader of Laskar Jihad, Ja'far Umar Talib and FKM, Alex Manuputti arrested.
	October	Laskar Jihad is missing from the Moluccas.
2003	May	Civil emergency lifted from the province of North Maluku.
	September	Civil emergency lifted from the province of Maluku.
2004	April	FKM RMS flag, sparking riots in Ambon that killed 40 people.
	June	General election

Source: Literature Review.

Maluku conflict is a multidimensional conflict. This conflict was triggered by a fight a young man with public transportation drivers in Batu Merah. Then grew into a conflict that dragged two different religious communities into it. The growing political importance along with the escalation of the conflict that continues to escalate make politicized religion as part of the Maluku conflict. The number of deaths of women and children is significant in Ambon conflict, conflict indicates gender bias. But the concept of gender bias, not solely because of the number of female victims. But gender bias interpreted as a deviation to the right of public access to women. The shape of the deviation due to the strengthening of the role of men in various social activities that took place during the conflict. Gender bias condition is a condition women do not have access to determining the attitude in resolving the conflict. Demonstration Efforts women demanded a cessation of conflict are not addressed as part of gender bias. Gender awareness is still hindered by the patterns of the traditional understanding of the position and role of women in society. The pattern is often determined by the construction of cultural understanding. In times of conflict women's voices represent the voices of victims and often ignored. Although some of them engage directly mediate the warring factions and help find a way out of violent conflict. There also are strengthening the role of civil society in addressing existing conflicts and prevent violence in the future. Conflict resolution efforts carried out intentionally by women visible from several meeting initiated by women two religious communities which then spawned the Women's Movement matter. The movement emerged to establish communication between the warring religious communities in Ambon city. This movement then becomes a bridge women's level grassroots to access government officials (male) and advocate for women's issues during the conflict.

CONCLUSION

The role of women actively involved as a squad leader, and also prepare logistics for the men who fought. The emerging role as a spiritual and religious reaction. woman plays the role of "liaison" community, especially areas where Muslims and Christians live together and they provide a safe place for families. But the efforts of women demonstration demanding a cessation of conflict are not addressed. Gender awareness is still hindered by the patterns of the traditional understanding of the position and role of women in society in Maluku.

REFERENCES

1. Brown, Graham, Wilson, Christopher and Hadi, Suprayoga.2005. Overcoming Violent Conflict: Peace and Development Analysis in Maluku and North Maluku. Vol. 4, Bappenas, Jakarta: United Nations Development Program and the Indonesian Institute of Sciences.
2. Coleman and Eric Marcus.2006. The Handbook of Conflict Resolution Theory and Practice. Second Edition San Francisco, Jossey Bass
3. Colombijn Freek and J Thomas Lindblad 2002. Eds Roots of Violence in Indonesia. Singapore ISEAS
4. Louis Kriesberg, 2003. Constructive Conflicts From Escalation to Resolution. Maryland: Rowman and Littlefield Publishers Inc.
5. Suseno, Franz Magnis,1999. Pemikiran Karl Marx Dari Sosialis Utopis ke Perselisihan Revisionisme, PT. Gramedia Pustaka Utama, Jakarta.
6. Trijono L. 2001 Exit From Crisis Maluku. Yogyakarta: Student Library Yanuarti Sri others 2003. Conflict in Central Maluku Cause Characteristics and Long-Term Settlement LIPI Jakarta
7. Van Klinken, Gerry, 1999. "What the caused the Ambon violence?" Inside. Indonesia.

DOI 10.18551/rjoas.2019-08.06

HOW PACKAGING, PRODUCT QUALITY AND PROMOTION AFFECT THE PURCHASE INTENTION?

Yulianingsih Ririn, Syah Tantri Yanuar Rahmat*, Anindita Rina

Faculty of Economics and Business, University of Esa Unggul, Indonesia

*E-mail: tantri.yanuar@esaunggul.ac.id

ABSTRACT

This study aims to measure the moderation between the effect of packaging design and product quality of hand body lotion, a brand of body care products, toward purchase intentions moderated by promotional variable. Data collection methods used are quantitative method in the form of questionnaires totaling 18 questions which are divided into four variables, then will be tested using Moderation method with a comparative approach of two groups of data samples to see the relationship between variables. Data analysis method in this study uses Univariate Analysis of Variance. The results showed that product packaging variables did not increase purchase intention, while product quality and promotion variables affected consumers' purchase intention for hand body lotion products.

KEY WORDS

Packaging, product quality, promotion, purchase intention, hand body lotion.

The purchase intention is based on consumer perceptions from some of the things that underlie the product, one of the supporting factors is packaging features and product quality, which causes a tendency for buyers to form their own opinions of various products on the market. This also depends on consumers' understanding of the various designs and graphics on the packaging that give a first impression, then attract the attention of consumers, which in turn, will be a driving factor for consumers to buy these products. Based on previous research, G. Wells, LE, Farley, H. and Armstrong (2017) says that nine out of ten buyers, at least occasionally ever buy impulsively, are reinforced by evidence that food shopping articles are not planned which can reach 51 percent of the total purchase (Ampuero, O. and Vila, 2006). This proves that not a few consumers become impulsive buyers when looking at product packaging that then attracts their attention, so they want to buy it, especially if the item has good quality and offers lucrative promotions, so the buying decision will occur suddenly and immediately before make a purchase.

However, contrary to previous research described above, there are other studies that prove that gifts and promotions such as coupons and rebates can damage product evaluation and brand loyalty (Cheong, n.d.). The main purpose of destructive effects is based on self-perception theory (Newberry, CR, Klemz, BR, and Boshoff, 2003) and attribution of price cuts (Vidales Giovannetti, 1995) Self-perception and discounts occur when someone relies on past behavior as an information signal to form an attitude assessment of the product, and when the behavior is associated with a prize rather than a truly honest positive evaluation of the product after trying the product.

Based on the explanation above, it is known that there are many studies on packaging, product quality, promotion, and purchase intention, which have been done in previous studies. However, these studies have not examined skin care products in the form of hand body lotion. In addition to these reasons, this study also wants to confirm the truth of previous studies, so that based on the above research gap, the purpose of the research to be achieved is to measure the variable level of low significance of one to the other variables, including the variable packaging and product quality, toward consumer buying intentions, which are moderated by promotional variable.

LITERATURE REVIEW

Price promotion is a kind of sales promotion, which means a kind of promotional activity that companies use as all types of short-term incentives to encourage the purchase or sale of production and services, which have features to achieve rapid sales volume growth in the short term (Chen, 2004). Price promotions and discounts have utilitarian and hedonic values for consumers, where promotions and price discounts encourage consumers to buy products that offer discounted prices, discounts or gifts. Consumer preferences for stores are influenced by functional and hedonic benefits. Functional or utilitarian benefits are related to product and service attributes, while hedonic values are associated with store atmosphere, layout, and product appearance (Nysveen, H., Pedersen, P.E. and Thorbjørnsen, 2005). The hedonic and utilitarian benefits offered by retailers in malls combine factors such as product mix, variety, price, and promotion strategies (Chen, 2004). The popularity of malls is associated with retailers offering various facilities that target different consumer segments. Discounts, discounts, free, and discounted prices have been used by retailers to improve store protection and loyalty (Cheong, n.d.). For mall retailers, price promotion is an important strategy to increase sales and customer satisfaction (Kabir Chowdhury, M.H. and Andaleeb, 2007).

Hawkes (2010) describes packaging as a marketing tool that combines four marketing "Ps"; namely, products, public relations, prices, and promotions, where Hawkes refers to portrayals, shapes, and symbols as the main visual features of a product.

In general, packaging is a container that is in direct contact with the product itself, which holds, protects, preserves, identifies products, facilitates handling and commercialization (Vidales Giovannetti, 1995). More specifically, according to (Vidales Giovannetti, 1995), there are three types of packaging, namely the main packaging that comes in direct contact with the product, such as a perfume bottle. Secondary packaging that contains one or more primary packages, which functions to protect and identify the product itself, and communicate the quality of the product, which is usually discarded after the product is used or consumed. Following the previous example, this will be a cardboard box containing a bottle of perfume. The latter is tertiary packaging in the form of a combination of the main packaging and secondary packaging, which functions to distribute, unite and protect products throughout the commercial chain. This will be a cardboard box containing several bottles (Olga Ampuero, 2006).

Packaging is not only a logistics tool to ensure safe and efficient delivery to consumers with minimum costs, but also is one of the most important marketing tools for communicating brand messages to consumers (Orth, U.R. and Marchi, 2007). From a marketing perspective, product packaging is extrinsic cues (Orth, U.R. and Marchi, 2007), where consumers first see product packaging, and then just enjoy the product (Orth, U.R. and Marchi, 2007). Therefore product packaging is a means for producers to communicate subliminally with their customers (Thalhammer, 2007). Based on the explanation above, product packaging has a big influence on buyers when determining purchasing decisions (Venter, K., van der Merwe, D., de Beer, H., Kempen, E. and Bosman, 2011). Previously (Venter, K., van der Merwe, D., de Beer, H., Kempen, E. and Bosman, 2011) examined packaging related to visual packaging features (Newberry, CR, Klemz, BR, and Boshoff, 2003), then suggested that the visual packaging attributes should include colors, graphics, shapes, images, typography, and illustrations.

Product quality is important for consumers when discussing consumer retail (Noad, J. and Rogers, 2008). Product quality perceived by consumers is a consumer's assessment of the overall superiority or predominance of a product (Anselmsson, J., Johansson, U. and Persson, 2007). In the study, perceptions of the quality of food products refer to the customer's assessment of the guarantee or excellence of food products considered. Previous research has suggested that consumer attitudes are shaped by learning and are influenced by personal experience and marketing stimuli (Schiffman, L. G., and Kanuk, 2000). In addition, the product package consists of a series of cues (Kabir Chowdhury, M.H. and Andaleeb, 2007) that function as indicators of product quality substitution (Zeithaml, 1988). In

this study, "attitude towards visual packaging design" refers to the feeling of being liked by consumers towards packaging attributes or features, including the choice of colors, fonts, graphics, and certain sizes. According to (Noad, J. and Rogers, 2008), consumers tend to form perceptions of product benefits when exposed or evaluate visual packaging signals.

Dodds W.B., Monroe K.B. and Grewal (1991) argue that purchase intention is applied to measure the possibility of purchasing certain products by consumers. This opinion is reinforced by the opinion of (Schiffman, L. G., and Kanuk, 2000), which argues that when consumer buying intention is higher, it means the purchase probability is also higher. This is consumer behavior intention after receiving external information. (Newberry, CR, Klemz, BR, and Boshoff, 2003) argue that when consumers have strong purchase intentions, it will produce two types of purchase levels, the first is purchase intention and the practice of purchasing decision making, while the second is purchase intention without direct practice in making purchasing decisions. According to the argument mentioned above, (Schiffman, L. G., and Kanuk, 2000) defines consumer purchasing intentions as the possibility of purchasing a product is the tendency of consumers to choose products.

Purchase intention refers to certain exchange behaviors that are created after a general evaluation of consumers on a product. This is a reaction to the perception taken of one's attitude towards an object. That is, consumer purchase intentions are formed by evaluating products or their attitude towards a brand combined with external stimulant factors. (Dodds, W. B., Monroe, K. B., and Grewal, 1991) suggest that purchase intention represents the possibility for consumers to buy a product.

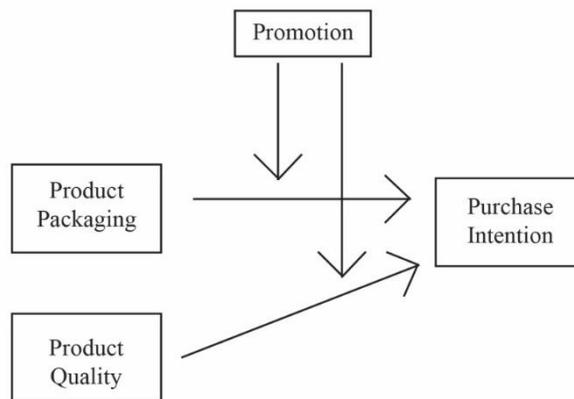


Figure 1 – Research Conceptual Framework

HYPOTHESIS DEVELOPMENT

The research hypothesis is based on the research conceptual model presented in Figure 1. From the model described above, the development of the hypothesis of this study is as follows.

H1: Product packaging affects purchase intention. Packaging is not only a means to ensure safe and efficient logistics delivery to customers with minimum costs, but also is one of the most important marketing tools for communicating brand messages to consumers. From a marketing perspective, product packaging is extrinsic cues (Chung, J.E., Yu, J.P. and Pysarchik, 2006), and the first, consumers see product packaging, then feel the quality of the product (Orth, U.R. and Marchi, 2007). Therefore product packaging is a means for producers to communicate subliminally with their consumers (Thalhammer, 2007) for product evaluation (Chung, JE, Yu, JP and Pysarchik, 2006), brand differentiation and identity, and consumer brand influence (Sugiyono, 2012) Because product packaging reaches most buyers when important purchasing decisions occur (Ampuero, O. and Vila, 2006). Furthermore, the researchers have further suggested that product packaging is one of the sustainable marketing communication tools to grow in importance (G. A. (2007) Wells, L.E.,

Farley, H. and Armstrong, 2007). Previous research on packaging focused on visual packaging features (Mensonen, A. and Hakola, 2012), and suggested that visual packaging attributes include colors, graphics and image forms, typography, and illustrations (Venter, K., van der Merwe, D., de Beer, H., Kempen, E. and Bosman, 2011).

Previous studies have suggested further that visual package elements play a large role in influencing consumer purchasing decisions on products, especially in products with low involvement (Silayoi, P. and Speece, 2004). Low-involvement goods refer to the product categories purchased regularly and without much consideration, search, or time of purchase (Sehrawet, M. and Kundu, 2007). In general, examples of these items are food and beverages, which are considered products with low involvement because they are usually of low value and high volume (Hingley, M., Taylor, S. and Ellis, 2007).

H1a: Promotion contributes to rise the product packaging which impact the purchase intention.

Packaging will play the role of "speechless sellers" for products, as a result of competition between products similar to almost the same technical and qualitative parameters. As a result, successful products are those that have packaging that successfully creates favorable opinions about products, fulfills functions that have been designed, and that meets aesthetic requirements. In addition to the visual aspects of packaging design, price promotion is the most attractive trend to buy products. However, promotion also requires many other supporting aspects, such as packaging products, product quality, product functions and more. The majority of consumers like promotions and will be further strengthened if the goods being promoted have good and attractive product packaging. Moreover, promotions make people who do not have the intention to buy something, finally buy because the price is discounted and packaged attractively.

In addition to product packaging aspects, promotional factors also play an important role in the success of product sales. According to (Kim, J., Bojanic, D.C. and Warnick, 2009), price discounts are one of the most common marketing practices, with the aim of increasing sales. In consumption decisions, consumers not only seek pleasure from getting products but also seek good offers (Dawra, J., Katyal, K. and Gupta, 2015). This is suggested by the utility theory of transactions (Thaler, 1985), where utility acquisition reflects economic gains or losses from purchases, and transaction utility reflects the perceived benefits of the agreement. Transaction utility has proven important in consumer decisions even when products provide high acquisition utility (Meuhlbacher, S., Kirchler, E. and Kunz, 2011).

H2: Product quality has an impact on purchase intention. Perception of product quality is very important in most purchase transactions, and the effect of perceived quality on brand evaluation has been well documented (Metcalf, L., Hess, J.S., Danes, J.E. and Singh, 2012). Previous research has suggested that brand preference increases with increasing importance of product quality (Chomvilailuk, R. and Butcher, 2010). Thus, product quality has the potential to be an important factor that influences perceptions of brand preference (Ahmed, 2011). Product quality is a way in which customers view product brand equity and overall excellence compared to available alternatives (Aaker, 1991). According to (Zeithaml, 1988), this is related to the attitude of customers towards overall brand experience that is contrary to product-specific characteristics only.

H2a: Promotion contribute to rise the product quality which affect the purchase intention. Promotions is able to influence product evaluation and product selection processes, which are influenced by promotional factors. (Gardner, 1985) has proven that marketing actions, such as stimulation of purchasing and communication, will affect consumer effectiveness, which in turn will affect product evaluation and product selection decisions. In-store surprise coupons lead to increased affective circumstances, which results in better store evaluations and more unplanned purchases (Heilman, Carrie M., 2002). In addition, lottery can also generate strong and positive affective reactions in the minds of consumers, which will lead to the use of simple decision rules in evaluating product quality (Howard, 1991).

Previous research has shown that store promotions presented at the beginning of the year on consumer shopping trips automatically affect consumers' affective status during

travel (Gardner, 1985). Although the influence caused by the promotion must be considered irrelevant in the choice of the next product, such influences influence consumer decision making in the choice process, which in turn can lead to different choices (Heilman, Carrie M., 2002). For example, (Heilman, Carrie M., 2002) found that surprises in store coupons make consumers feel more positive and thus cause more unplanned purchases.

METHODS OF RESEARCH

This research was conducted in November 2018, with 120 female respondents in various regions in Indonesia, ranging in age from 18 to 29, who were users of hand body lotion. The study aims to measure the moderation between the effect of packaging design variable and product quality variable on hand body lotion, a brand of body care products, on the purchase intention variable of products that are moderated by promotional variables. The data collection method used in this study is a quantitative method in the form of a questionnaire totaling 18 questions, using a moderation research method with a comparative approach of two groups of data samples to see the relationships between variables. Data analysis method in this study uses Univariate Analysis of Variance. The aspects studied were product packaging, product quality, promotion, and purchase intention, using the Likert scale measurement method with one to five scale intervals.

The questionnaire used in this study was divided into four parts. The first part is designed to measure the level of customer perception about the packaging design of hand body lotion products. The questions used in the questionnaire were adapted from content validity ratios (Lawshe, 1975), but this study only adapted 3 items of questions out of a total of 30 items that Lawshe had formulated.

The second part is designed to measure the level of consumer perceptions about the product quality of hand body lotion referred to by Perceived Quality Indicators initiated by Dodds and Monroe (Dodds, W. B., Monroe, K. B., and Grewal, 1991). The third part is designed to measure the level of customer perceptions of the effect of promotion in purchasing hand body lotion products, where the questions in the questionnaire are referenced from Coupon Proneness formulated by Lichtenstein, Netemeyer, and Burton (Lichtenstein, Donald R, Peter h. BLOCH, 2016) The fourth part is designed to measure the intention to purchase hand body lotion products, using the Willingness To Buy Indicators, which was also initiated by Dodds and Monroe (Lichtenstein, Donald R, Peter h. BLOCH, 2016).

Data was collected using a Likert scale questionnaire consisting of 18 questions in Indonesian as the native language of the respondents. Each question is followed by five answer choices, namely "strongly agree," "agree," "neutral," "disagree," and "strongly disagree." Respondents were asked to answer questions about packaging design, product quality, promotion, and purchase intention, from a hand body lotion product, which also included photos and illustrations of their products, so that respondents could see the visualization of the hand body lotion products.

In this study, there are two independent variables, namely Product Packaging and Product Quality, one moderating variable, Promotion, and one dependent variable, Purchase Intention. To obtain data from respondents, a questionnaire was used. The original questionnaire used English which was then translated into the original languages of the respondents, namely Indonesian. Validity test and reliability test is done by using 30 data in the initial sample.

In the initial stage, the questionnaire was distributed to 30 women as samples to verify the validity of the content. After testing, the results of Anti Image Matrices for independent variables and moderating variables, namely product packaging, product quality, and promotion, produce good output, which is 0.662; 0.808; and 0,631 respectively, so that all questions with a total of 18 items in the questionnaire were omitted because the results of the validity and reliability test showed good numbers.

Validity test is done by Confirmatory Factor Analysis, by looking at the value of Kaiser-Meyer-Olkin Measure of Sampling (KMO) and Measures of Sampling Adequacy (MSA). In

this test the value obtained must be greater than 0.500 which means that factor analysis is suitable for use, and can be further processed (Doll et al., 1994). Cronbach Alpha value reliability test is greater than > 0.5 which means reliable (Sugiyono, 2012), so that it can be said that the indicators of all variables can be said to be trusted as a data collection tool in this study. Furthermore, the actual questionnaires were distributed to 120 respondents. The results of validity and reliability tests for 120 respondents also showed normal and homogeneous numbers, as a condition for carrying out data analysis methods using Univariate Analysis of Variance. The next phase, this study manage data using the Univariate Analysis of Variance analysis method, which is able to explain the analysis of variability in two sample groups in detail.

RESULTS AND DISCUSSIONS

This finding provides some insight into the visual effects of packaging design and perceptions of product quality, on perceptions of product purchase intentions, which are moderated by the influence of promotions on the hand body lotion market. The scale of product packaging, product quality, promotion, and purchase intention, are divided into two groups to compare, the first will test the moderation of product packaging, promotion, and its influence on purchase intention, while the second group will examine the effect of product quality moderated by promotional variable towards the dependent variable purchase intention.

The table below describes the results of Univariate Anova on moderating Promotional Fix Factors and Product Packaging on the dependent variable Buy Intention. The Confidence Interval used is 95% or if the Sig value is <0.05 then it is said to be significant.

Table 1 – Univariate ANOVA Parameter Estimates

<i>Parameter</i>	B	β	t	Sig	<i>Description</i>
Intercept	β_0	0.529	3.989	0.000	<i>significant</i>
K_Code=1	β_1	-0.389	-1.469	0.145	<i>Not Significant</i>
[K_Code=1]*[P_Code=1]	β_2	-0.706	-2.662	0.009	<i>Significant</i>
[K_Code=2]*[P_Code=1]	β_3	-0.555	-2.094	0.038	<i>Significant</i>

H1: Product packaging does not increase purchase intention.

H3: Product packaging that is moderated by Promotion increases Purchase Intention.

The calculation of test results on the relationship model of Packaging Products that are moderated by the Promotion of Buying Intention, can be seen in table 2.

Table 2 – Calculation of Test Results

n/n	K_Code=2	K_Code=1	<i>Difference</i>	<i>Hypothesis</i>
P_Code=2	β_0	$\beta_0-\beta_1$	β_1	H _{3a}
P_Code=1	$\beta_0-\beta_3$	$\beta_0-\beta_1-\beta_2$	$\beta_3+ \beta_1- \beta_2$	
Difference	β_3	β_2		
Hypothesis	H _{3c}	H _{3b}		

H3a: Specifically for respondents with high perceptions of promotion, high perceptions of packaging increase purchase intention compared to low perceptions of packaging.

H3b: Especially for respondents with low perceptions of packaging, the perception of high promotion further increases purchase intention compared to the perception of low promotion.

H3c: Especially for respondents with high perceptions of packaging, the perception of high promotion further increases purchase intention compared to the perception of low promotion.

The table below describes the results of Univariate Anova towards moderating the Promotion and Product Quality factor on the dependent variable of Purchase Intention. The Confidence Interval used is 95% or if the Sig value is <0.05 then it is said to be significant.

Table 4 – Univariate ANOVA Parameter Estimates

<i>Parameter</i>	B	β	t	Sig	<i>Description</i>
Intercept	β_0	0.619	5.033	0.000	<i>Significant</i>
KP_Code=1	β_1	-1.022	-3.560	0.001	<i>Significant</i>
[KP_Code=1]*[P_Code=1]	β_2	-0.100	-0.348	0.728	<i>Not Significant</i>
[KP_Code=2]*[P_Code=1]	β_3	-0.730	-2.542	0.012	<i>Significant</i>

H2: Product Quality increases Buy intention.

H3: Product quality with low perceptions, moderated by low perceptions of Promotion, does not increase Purchase Intention. Whereas, the quality of products with high perceptions, which are moderated by low perceptions of promotion, increases purchase intention.

Calculation of the results of the test on the relationship model of Product Quality that is moderated by Promotion to Purchase Intention, can be seen in table 4 below.

Table 4 – Test Results Calculation

n/n	KP_Code=2	KP_Code=1	<i>Difference</i>	<i>Hypothesis</i>
P_Code=2	β_0	$\beta_0 - \beta_1$	β_1	H _{4a}
P_Code=1	$\beta_0 - \beta_3$	$\beta_0 - \beta_1 - \beta_2$	$\beta_3 + \beta_1 - \beta_2$	
Difference	β_3	β_2		
Hypothesis	H _{4c}	H _{4b}		

H4a: Especially for respondents with high perceptions of promotion, the perception of high product quality further increases purchase intention compared to perceptions of low product quality.

H4b: Especially for respondents with a perception of low product quality, the perception of high promotion further increases purchase intention compared to the perception of low promotion.

H4c: Especially for respondents with high perceptions of product quality, the perception of high promotion further increases purchase intention compared to the perception of low promotion.

On the results of testing the first hypothesis (H1) it was found that the data did not support the hypothesis because based on the results of the Univariate Anova test on product packaging variable that were not moderated by promotion showed insignificant results. These results do not support previous studies conducted by (Ampuero, O. and Vila, 2006) which prove that product packaging has a large influence on buyers when deciding purchasing decisions. The difference in the results of this study may be due to previous research conducted with products or different ways with this research. The results of this study also contradict previous studies which support the initial hypothesis, however, (Underwood, 2003) in his study also proved that packaging is presented as part of the buying and consuming process, but often not directly related to the material that is important for product function. Based on this theory, it can be concluded that good packaging does not guarantee good product quality.

The results of testing the second hypothesis (H2) found that the data supports the hypothesis because of the results of Univariate Anova test on product quality variables that affect the purchase intention variable, without any influence from the moderation of promotional variables. However, for the Univariate Anova test results on product quality variables moderated by promotional variables, significant results were obtained for the group of respondents with a high perception of product quality and moderated by the respondent group with a perception of low promotion. Conversely, respondents with low perceived quality products are moderated by promotions that are also low, so there are insignificant results. This proves that if the quality of the product is good, even though there is no promotion of the product, consumers may still buy the product. The results are consistent with the research (Kotler, 2001) which argues that the better the quality of the product produced it will provide an opportunity for consumers to make purchasing decisions.

The results of testing the third hypothesis (H3) found that the data supports the hypothesis because of the results of Univariate Anova test on product packaging variable moderated by promotion, obtained sig 0.009 for moderation between respondents with low packaging perceptions with respondents with low perceptions of promotion, while for results tests between respondents with high perceptions of packaging with respondents with low perceptions of promotion, the results obtained were 0.038. In addition, the results of this study prove that specifically for respondents with high perceptions of promotion, the perception of high packaging increases purchase intention more than the perception of low packaging. Whereas specifically for respondents with low perceptions of packaging, the perception of high promotion increases purchase intention more than the perception of low promotion. Moreover, according to the H3c hypothesis specifically for respondents with high perceptions of packaging, the perception of high promotion further increases purchase intention compared to the perception of low promotion. This proves that product packaging that is reinforced by promotional factors will increase consumers' purchase intention of hand body lotion product.

CONCLUSION

This study examines the moderating effect of promotion on product packaging on increasing purchase intention, using Univariate Anova analysis. The results that can be concluded from this study are: (1) Product packaging does not increase consumer purchase intention of hand body lotion (the first hypothesis is not supported); (2) Product packaging which is moderated by promotion increases consumer purchase intention (hypothesis 1a is supported); (3) Particularly for groups of respondents who have high product packaging perceptions, then respondents with high perceptions of promotion have higher purchase intentions than those of respondents with low perceptions of promotion; (4) Especially for groups of respondents who have low perceptions of product packaging, then respondents with high perceptions of promotion have higher purchase intention than those of respondents with perceptions of low promotion; (5) Especially for groups of respondents who have high perceptions of promotion, then respondents with high perceptions of packaging have higher purchase intention compared to groups of respondents with low packaging perceptions; (6) Product quality increases consumer purchase intention of hand body lotion (second hypothesis is supported); (7) Specifically for groups of respondents who have high perceptions of promotion, then respondents with a perception of high product quality have higher purchase intention compared to the group of respondents with a perception of low product quality; (8) Specifically for groups of respondents who have a low perception of product quality, the respondents with high perceptions of promotion have higher purchase intention compared to the group of respondents with a low perception of promotion; (9) Specifically for groups of respondents who have high perceptions of product quality, the respondents with high perceptions of promotion have higher purchase intention than the respondent group with the perception of low promotion.

Certain research limitations must be considered when applying the results of this study, so that further studies can be even better. As a suggestion, further studies should discuss how other factors influence the purchase intention of the product, such as advertising, brand, price, and various other variables

Second, the research object design uses one new hand body lotion product, so further research is suggested to be replicated for other skin care products or using old brands that are already well-known, so that the research respondents are more familiar with these products, which will ultimately facilitate them in completing the questionnaire provided.

Further studies can also broaden gender as the respondent, because this study is only limited to female respondents who use hand body lotion products in their daily lives. In contrast, previous research shows that gender differences will also process advertisements differently, and consequently respond to marketing communication efforts differently (Nysveen, H., Pedersen, P.E. and Thorbjørnsen, 2005). Therefore, moderators such as gender can be added to the proposed hypothesis.

REFERENCES

1. Aaker, D. A. (1991). *Managing Brand Equity: Capitalizing on the Value of a Brand Name*.
2. Ahmed, H. T. (2011). The impact of distribution intensity on brand preference and brand loyalty. *International Journal of Marketing Studies*, Vol. 3 No. 3, 3(3), 56–66.
3. Ampuero, O. and Vila, N. (2006a). The influence of visual packaging design on perceived food product quality, value, and brand preference, 41(10), 805–816. <https://doi.org/10.1108/IJRDM-12-2012-0113>
4. Ampuero, O. and Vila, N. (2006). (2006b). Consumer perceptions of product packaging. *The Journal of Consumer Marketing*, Vol. 23 No. 2, Pp. 102-114.
5. Anselmsson, J., Johansson, U. and Persson, N. (2007). Understanding price premium for grocery products: a conceptual model of customer-based brand equity. *The Journal OfProduct and Brand Management*, Vol. 16 No. 6, 401–414.
6. Chen, Y. (2004). *Understanding the Impact of Certain and Uncertain Store Promotions on the Decision-Making Process in Product Choices*. ProQuest Information and Learning Company.
7. Cheong, K. J. (1993). (n.d.). *Observations: are cents-off coupons effective?* SAGE Publications, 37(5), 600–623. <https://doi.org/10.1177/1741143209339650>
8. Chomvilailuk, R. and Butcher, K. (2010). (2010). Enhancing brand preference through corporate social responsibility initiatives in the Thai banking sector. *Asia Pacific Journal OfMarketing and Logistics*, Vol. 22 No. 3, 22(3), 397–418. <https://doi.org/10.1108/JOCM-02-2014-0025>
9. Chung, J.E., Yu, J.P. and Pysarchik, D. T. (2006). Cue utilization to assess food product quality: a comparison of consumers and retailers in India. *The International Review of Retail, Distribution and Consumer Research*, Vol. 16 No. 2, 2(March), 199–214.
10. Dawra, J., Katyal, K. and Gupta, V. (2015). Can you do something about the price? Exploring the Indian deal and bargaining-prone customer. *Journal of Consumer Marketing*, Vol. 32 No. 5, 32(5), 356–366. <https://doi.org/10.1007/s10551-015-2943-3>
11. Dodds, W. B., Monroe, K. B., and Grewal, D. (1991). Effects of price, brand, and store information on buyers' product evaluations. *Journal of Marketing Research*, 307–319.
12. Gardner, M. P. (1985). Mood States and Consumer Behavior: A Critical Review. *Journal of Consumer Research*, 12(3), 281–300.
13. Hawkes, C. (2010). Food packaging: the medium is the message, 45(3).
14. Heilman, Carrie M., K. N. and A. G. R. (2002). Pleasant Surprises: Consumer Response to Unexpected In-Store Coupons. *Journal of Marketing Research*, 39, 39(2), 242–252.
15. Hingley, M., Taylor, S. and Ellis, C. (2007). Radio frequency identification tagging. *International Journal of Retail and Distribution Management*, Vol. 35 No. 10, 10(5), 803–820.
16. Howard, D. J. and T. E. B. (1991). The Evaluative Consequences of Experiencing Unexpected Favor. *Journal of Marketing Research*, 27(1), 27(1), 51–60.
17. Kabir Chowdhury, M.H. and Andaleeb, S. S. (2007). A multivariate model of perceived quality in a developing country. *Journal of International Consumer Marketing*, Vol. 19 No. 4, 15(04), 33–57.
18. Kim, J., Bojanic, D.C. and Warnick, R. B. (2009). Price bundling and travel product pricing practices used by online channels of distribution. *Journal OfTravel Research*, Vol. 47 No. 4, 47(4), 403–412.
19. Kotler, P. (2001). *Manajemen Pemasaran: Analisis, Perencanaan, Implementasi, and Kontrol*.
20. Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, Vol. 28 No. 4, 28(4), 563–575.
21. Lichtenstein, Donald R, Peter h. bLOCH, wILLIAM c. (2016). Correlates of Price Acceptability. *Journal Of Consumer Research*, 15, 243.
22. Mensonen, A. and Hakola, J. (2012). Novel value perceptions and business opportunities through packaging customization. *International Journal of Business and Social Science*, Vol. 3 No. 6, 3(6), 39–43. <https://doi.org/E-ISSN 1833-8119>

23. Metcalf, L., Hess, J.S., Danes, J.E. and Singh, J. (2012). A mixed-methods approach for designing market-driven packaging. *Qualitative Market Research*, Vol. 15 No. 3, 15(3), 268–289. <https://doi.org/10.1108/026355711111137250>
24. Meuhlbacher, S., Kirchler, E. and Kunz, A. (2011). The impact of transaction utility on consumer decisions: the role of loss aversion and acquisition utility. *Journal of Psychology*, 219(4), 217–223. <https://doi.org/10.1007/s10869-010-9194-1>
25. Newberry, C. R., Klemz, B. R., and Boshoff, C. (2003). (2003). Managerial implications of predicting purchase behavior from purchase intentions: A retail patronage case study. *Journal of Services Marketing*. *Journal of Services Marketing*, 17(6), 17(6), 609–620.
26. Noad, J. and Rogers, B. (2008). The importance of retail atmospherics in B2B retailing: the case of BOC. *International Journal of Retail and Distribution Management*, Vol. 36 No. 12, 13(3), 1002–1014.
27. Nysveen, H., Pedersen, P.E. and Thorbjørnsen, H. (2005). Explaining intention to use mobile chat services: moderating effects of gender. *The Journal Of Consumer Marketing*, Vol. 22 Nos 4/5, 22(Nos 4/5), 247–256.
28. Olga Ampuero, N. V. (2006). Consumer perceptions of product packaging. *Journal of Consumer Marketing*, 2, 102–114. <https://doi.org/10.1108/07363760610655032>
29. Orth, U.R. and Marchi, R. D. (2007). Understanding the relationships between functional, symbolic, and experiential brand beliefs, product experiential attributes, and product schema advertising-trial interactions revisited. *Journal Of Marketing Theory and Practice*, Vol. 15 No. 3, Pp. 219-233, (August 2017).
30. Schiffman, L. G., and Kanuk, L. L. (2000). *Customer behavior*. Englewood Cliffs.
31. Sehwawet, M. and Kundu, S. C. (2007). Buying behaviour of rural and urban consumers in India: the impact of packaging. *International Journal of Consumer Studies*, Vol. 31 No. 6, 31, 630–638. <https://doi.org/10.1016/j.ijnurstu.2004.09.003>
32. Silayoi, P. and Speece, M. (2004). Packaging and purchase decisions: an exploratory study on the impact of involvement level and time pressure. *British Food Journal*, Vol. 106 No. 8, 106(8), 607–628.
33. Sugiyono. (2012). *Metode Penelitian Kuantitatif, Kualitatif, and RandD*. Bandung: Alfabeta, 2012.
34. Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, Vol. 4 No. 3, 4(3), 199–214.
35. Thalhhammer, R. R. (2007). Natural product packaging: reflecting a contemporary philosophy. *Global Cosmetic Industry*, Vol. 175 No. 12, Pp. 52-55, 18(4), 453–461.
36. Underwood, R. L. (2003). The communicative power of product packaging: creating brand identity via lived and mediated experience. *Journal of Marketing Theory and Practice*, Vol. 11 No. 1, 11(1), 62–76. <https://doi.org/10.1108/16605370910988818>
37. Venter, K., van der Merwe, D., de Beer, H., Kempen, E. and Bosman, M. (2011). Consumers perceptions of food packaging: an exploratory investigation in Potchefstroom. *International Journal of Consumer Studies*, 8, 55–82.
38. Vidales Giovannetti, M. D. (1995). (1995). El mundo del envase. *Manual para el diseño y producción de envases y embalajes*, 7(1), 17–28. <https://doi.org/10.1108/14720700710727087>
39. Wells, L.E., Farley, H. and Armstrong, G.. (2017). The importance of packaging design for own-label food brands., *International Journal Of Retail and Distribution Management*, (August).
40. Wells, L.E., Farley, H. and Armstrong, G. A. (2007). (2007). The importance of packaging design for own-label food brands. *International Journal Of Retail and Distribution Management*, Vol. 35 No. 9, 35(9), 677–690.
41. Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *The Journal of Consumer Marketing*, Vol. 23 No. 2, 18, 102–114.

DOI 10.18551/rjoas.2019-08.07

IMPROVING CREDIT SCORING MODEL OF MORTGAGE FINANCING WITH SMOTE METHODS IN SHARIA BANKING

Wibowo Hariz Eko, Mulyati Heti, Saptono Imam Teguh
 School of Business, Bogor Agriculture University, Indonesia
 *E-mail: hariz.ekowibowo@gmail.com

ABSTRACT

Credit scoring is a feasibility test system to provide financing with the aim of reducing the risk of default on mortgage financing (KPR). This study analyze the characteristics of customers of PT Bank XYZ and design a credit scoring model for mortgage financing. The data used are the demographics and quality of financing from January 2014 to December 2017. This study compared several methods namely descriptive analysis, Weight of Evidence (WoE) Information Value (IV) method, logistic regression analysis with imbalance data and logistic regression analysis with Synthetic Minority Over sampling Technique (SMOTE) to overcome unbalanced data problems between non default and default customers. The results of the descriptive and WoE IV method compared the logistic regression analysis are relatively different because they analyze the effect of each independent X variable on dependent Y partially without considering the interaction of each variable. The credit scoring model with unbalanced data has higher accuracy and sencitivity than the credit scoring model with the SMOTE method. However, specificity of the credit scoring model by using unbalanced data is lower than the credit scoring model with the SMOTE method. In this study, credit scoring model was created to mitigate credit risk by avoiding customers who have greater default opportunities so the credit scoring model chosen is a higher specificity, namely the credit scoring model using the SMOTE method.

KEY WORDS

Credit scoring, mortgage financing, WoE IV, SMOTE, specificity.

The performance of Islamic banking in Indonesia is experiencing growth (OJK, 2017). The growth of Islamic banking assets compared to the growth of conventional banking assets was higher by 30.93% (Center for Economics and Business, Faculty of Economics and Business, University of Indonesia, 2018). The growth of Islamic banking assets yoy as of September 2017 was 19.08%. Distributed Financing (PYD) and Third Party Funds (TPF) of Islamic banking also experienced growth of 15.61% and 20.86% respectively. In addition to the growth of assets, PYD, and TPF, indicators that can show the performance of Islamic banking are Non Performance Financing (NPF), Financing to Deposit Ratio (FDR), Return on Assets (ROA), Capital Adequacy Ratio (CAR), and Operational Income Operating Costs (BOPO). NPF Gross in Islamic banking is 3.88% and NPF Net is 2.88%, FDR is 85.25%, ROA is 1.41%, CAR is 16.16%, BOPO is 87.46%.

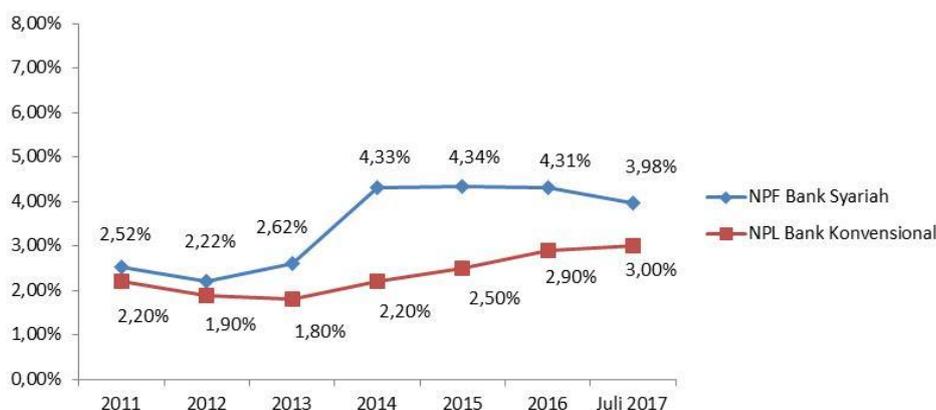


Figure 1 – Comparison between NPF Islamic Banking and NPL Conventional Banking (Source: PEBS FEBUI Indonesia Sharia Economic Outlook 2018)

However, the average of Non Performance Financing (NPF) in Islamic banking was relatively higher 1.12% then conventional Banking 's Non Performance Loans (NPL) from 2011 to July 2017 (Figure 1).

The causes of NPL in the banking sector are bank internal factors (Kasmir 2002), and external factors banks and debtors. Internal bank factors are Loan to Deposit Ratio (LDR) (Halim 2015), Earning Assets Quality (KAP), Return on Equity (ROE), Capital Adequacy Ratio (CAR) (Vatansever and Hepşen 2013), loan interest rates, valuation of bonds, bank officer, and financing amount, the characteristics and deterioration of the debtor's business. While external factors include inflation, exchange rates, real gross domestic product (GDP) per capita (Belloti and Crook 2014), natural disasters, a decrease in the country's monetary conditions, efforts and government regulations (Soebagio 2005).

Sharia banking financing based on types of usage are working capital, investment, and consumption. The consumer financing segment has the largest portion compared to the other segments (41.55%). Based on financing quality, NPF financing for consumption of Islamic Commercial Banks is higher than Conventional Commercial Banks (Figure 3).

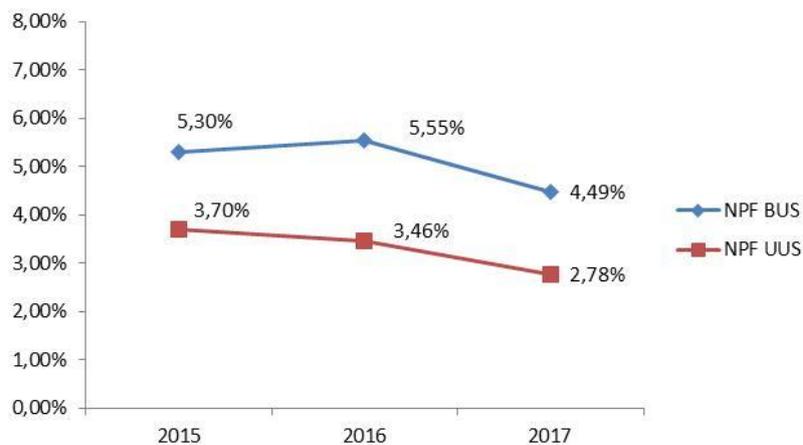


Figure 2 – Comparison between NPF BUS and UUS
(Source: PEBS FEBUI Indonesia Sharia Economic Outlook 2018)

One of the consumer financing is home ownership financing or mortgage (KPR). Islamic banking KPR financing in December 2017 was recorded at Rp 60.66 trillion or grew by 18.4%. In mortgage financing, UUS financing performance is better than BUS performance. Mortgage financing BUS up to December 2017 reached Rp 30.17 trillion or grew 9.48% with NPF 2.5%. Whereas the mortgage financing UUS up to December 2017 reached Rp 30.48 trillion or grew 28.9% with NPF 1.91%. (Indonesian Sharia Banking Snapshot OJK, 2017).

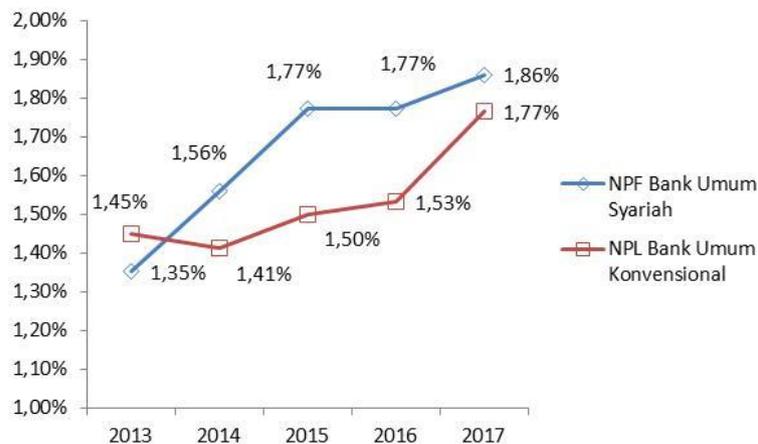


Figure 3 – The Consumer Financing NPF (Statistik Perbankan Indonesia Otoritas Jasa Keuangan, 2017)

One of the factors that caused the high level of NPF of Islamic Commercial Banks (BUS) was the internal factor of financing debtors. Banks can make decision-making errors in providing financing to debtors because banks have difficulty distinguishing between potential debtors who have the potential perform and default (Taswan 2011). This problem is often called information imbalance (asymmetric information) which is owned by financial institutions (banks) and the public as borrowers (Bakhtiar and Sugema 2012). The consequences of this asymmetric information can lead to adverse selection. Adverse selection because the bank does not know the characteristics of the debtor accurately when analyzing the documents submitted by the debtor (Saunders and Cornett 2006; Stiglitz and Weiss 1981; Lean and Tucker 2001; Ganbold 2008; Hwarire 2012; Maziku 2012; Khodabakhshian et al., 2013; Staten, 2014).

The characteristics of consumption financing are mass products, small ceilings, and fast financing processes. The feasibility test for financing must be done to reduce the risk of financing problems. The bank implements a financing due diligence system called Credit Scoring. Each financing applicant fills out the debtor's financial application form which is used to form a numerical score (Lewis 1992; Hand and Jacks 1998; Thomas et al., 2002). This numerical score is used to classify applicants into performing and non-performing financing (Durand 1941). Principles of analysis The financing risk used in this method is analysis of 5C (The Five C's of Credit Analysis), which is an assessment of Character, Capacity, Capital, Collateral, and Condition of Economy (conditions economy).

Usually the problem in applying the credit scoring model is the imbalance in the amount of data between smooth financing customers and bad financing customers. Analysis with unbalanced data will produce biased predictions. Prediction results will better describe classes that have a larger amount of data. Therefore, this research needs to be done to solve this data imbalance problem.

Based on these problems, the development of a credit scoring model needs to be carried out in support of increasing the growth of quality Islamic banks. This is a system of testing the feasibility of financing to reduce the risk of default on mortgage financing.

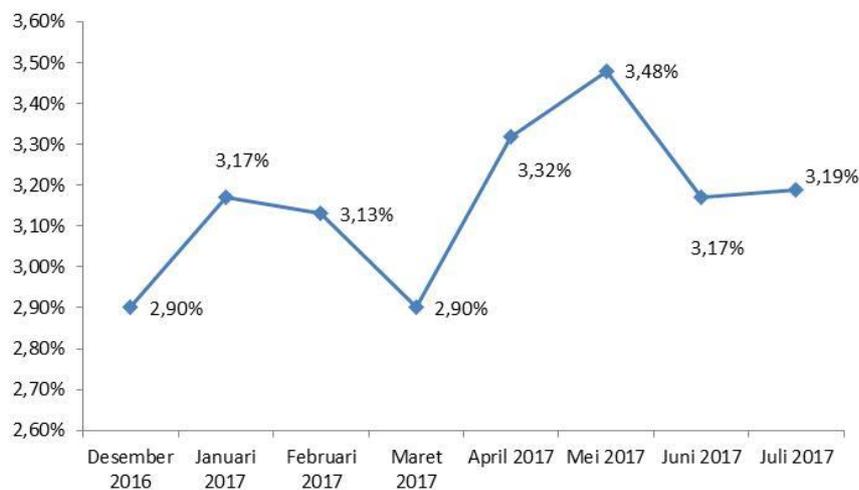


Figure 4 – NPF PT Bank XYZ until July 2017 (Source: Internal Data PT Bank XYZ)

The study was conducted at PT Bank XYZ due to NPF financing of average mortgages of 3.16% from December 2016 to July 2017 (Figure 4). PT Bank XYZ has implemented a credit scoring model, but the procedure for making a model has not accommodated imbalance data problems.

Therefore it is necessary to make a credit scoring model to mitigate the risk of problematic financing loans so that it can reduce NPF. The purpose of this study is to analyze the characteristics of customers of PT Bank XYZ and design a credit scoring model for mortgage financing using several methods to produce the best credit scoring model.

LITERATURE REVIEW

Financing is the ability to channel a loan with a promise of payment to be made at an agreed time period. According to the Law of the Republic of Indonesia No. 7 of 1992 concerning banking, financing is the provision of money or equivalent claims based on agreements between banks and other parties, which require borrowing parties to repay their debts after a certain period of time with a number of interest benefits or profit sharing. In general, there are three types of financing, namely:

Business financing is financing used to finance business turnover to produce something productive, such as trading business, home industry business, consulting services business, and others.

Consumption financing is financing with the aim of buying something that is consumptive, such as buying a house or private vehicle. Because it is consumptive, the risk of default is greater. In general, interest rates charged to debtors for financing consumption will be greater than the interest of financing for business purposes.

Multipurpose financing is financing that can be used for any purpose, for consumption or business. One of the multi-purpose financing products that are often marketed is financing without collateral.

Based on the decision of Bank Indonesia (Directors Decree No.7 / 2 / PBI / 2005), the quality of financing is divided into several qualifications, namely:

- Performing financing;
- Financing in particular attention, arrears for <90 days;
- Substandard financing, arrears for 90-180 days;
- Financing is doubtful, arrears occur for 180-270 days;
- Bad financing, arrears for > 270 days.

Risk analysis of financing quality financing (3), (4) and (5) is the quality of financing in the category of non-performing financing (NPF). That is, debtors with this category are classified as default debtors. The NPF formula is:

$$NPF = \frac{\text{Financing quality (3),(4),(5)}}{\text{Total Financing}} \times 100\%$$

Financing risk is a risk arising from the failure of a debtor to fulfill his obligations. Financing risk (default) is influenced by the inability or willingness of customers to fulfill loan commitments, trade, hedging, settlement, and other financial transactions. Financing risk generally consists of transaction risk or default risk and portfolio risk. Portfolio risk consists of intrinsic risk and concentration. The financing risk in the bank portfolio depends on external and internal factors. According to Graddy et al. (1985), in the financing risk analysis process there are 5 (five) main aspects regarding debtors that need to be analyzed, namely:

The assessment of the character or personality of the prospective debtor is intended to determine the honesty and good faith of the prospective debtor to pay off or repay the loan.

This is related to the ability of the debtor to pay obligations to the financing provider.

The capital aspect illustrates that prospective borrowers have sufficient capital to support project financing or the business of the prospective debtor concerned.

The bank must ensure that the collateral submitted by the prospective debtor is of sufficient quality and has complete documents. Collateral is used to cover the risk of bad financing.

This relates to the state of the business financed which is influenced by the economic environment or market conditions, so that the marketing prospects can be known from the results of the debtor's business.

In addition to assessing the 5C principle, there are several other factors that need to be considered in analyzing financing risks. According to Merton (1967), the magnitude of the risk of financing failure is also determined by the factor of the size of the loan amount. Therefore it is necessary to group debtors based on the number of loans. In addition, the duration of the repayment period (tenor) also affects the occurrence of bad financing. In general, the longer the repayment period, the greater the risk of default.

Credit scoring is a set of prediction models and techniques that underlie a financial institution in providing financing. These techniques determine who will get financing, the amount of financing that customers can get, and strategies that will increase the profitability of customers to the Bank. Finance valuation techniques assess risk in providing financing to certain customers. Credit scoring does not identify "good" applications and "bad" applications individually, but credit scoring estimates the probability that applicants with a given score will be "good" or "bad". Probabilities or scores from credit scoring models also consider business, such as expected approval levels, profits, and trends. Credit scoring results are used as a basis for decision making. (Rezac M & Rezac F 2011).

Several modeling methods for financing scoring have been introduced over the past six decades. The best known and commonly used methods are logistic regression, classification trees, linear programming approaches, and neural networks. (Rezac M & Rezac F 2011).

Credit scoring models must be used effectively. First, researcher needs to choose the best model based on several quality measures during development. Second, monitoring the quality of the model after implementation. The method of assessing the quality of financing models is measured by index. The most commonly used index in practice is Kolmogorov-Smirnov (KS). The Kolmogorov-Smirnov (KS) value shows the performance of the model.

The most important step in building a credit scoring model is determining the definition of the customer. In the case of valuation, customer financing is divided into three (3) groups, namely good, bad, and group customers outside the scope of the study. Usually this definition is based on the number of customer days after the due date (day past due / DPD). Banks need to regulate the level of tolerance in determining customer groups. Bad customers are usually defined as customers who pay late for at least 30 days (DPD 30+). Good customers are customers who do not have arrears. Customers who pay late between 1-30 days are customers who are in the gray category. This category is usually not defined by good or bad customers. This category belongs to a group outside the scope of research. Groups outside the scope of the study also include priority customers and customers with a history of financing not yet mature. (Rezac M & Rezac F 2011).

Information Value (IV) is used in the credit scoring financial industry. Information value is a numerical value to measure the predictive power of an independent variable to describe dependent binary variables. Information value formulas are as follows:

$$IV = \sum_{i=1}^n \left(\left(\frac{g_i}{g} - \frac{b_i}{b} \right) \times \ln \left(\frac{g_i/g}{b_i/b} \right) \right)$$

Where: n = number of observations or number of groups observation; g_i = good account ke – I; b_i = bad account ke – I; g = total good account, b = total bad account.

Information value is used to reduce the number of variables as a first step in logistic regression, especially logistic regression with many variables. Information value is based on the analysis of each individual predictor partially without taking into account interactions between predictors.

Weight of Evidence (WOE) is part of the information value formula. WOE measures the strength of each attribute grouped to separate good accounts and bad accounts. A good account is defined as an account with current collectability (Col 1). While bad accounts can be defined accounts with default collections (collections 2-5). WOE measures the probability to become good customers. The WOE formula is as follows:

$$WOE = \ln \left(\frac{g_i/g}{b_i/b} \right)$$

Where: n = number of observations or number of groups observation; g_i = good account ke – I; b_i = bad account ke – I; g = total good account, b = total bad account.

The simple rule of information value is if the greater the score of information value, then the independent variable is increasingly predictive. (Guoping 2013). But if IV is too large it must be checked because it allows over predicting. Best practices in grouping IV values are as follows:

- IV < 0,02 (not predictive);
- IV 0,02 – 0,1 = week predictive;
- IV 0,1 – 0,3 = moderate predictive;
- IV > 0,3 = strong predictive.

Synthetic Minority Over-sampling Technique Synthetic Minority Oversampling Technique (SMOTE) is one of the derivatives of oversampling. SMOTE was first introduced by Chawla (2002). This approach works by making replication from minority data. This replication is known as synthetic data. The SMOTE method works by searching for k-nearest neighbors (i.e. the closest neighboring data as much as k) for each data in the minority class. Synthetic data is made as much as the desired duplication percentage between minor data and k-nearest neighbors randomly selected.

Logistic regression is a method commonly used to analyze multivariate data involving binary response variables in giving credit scores. Logistic regression is a good method for respondents who are continuous. The assumption of a logistic regression model is a linear relationship between canonical parameters and vectors of independent variables X (dummy variables for factor levels and measured covariate values). The logitic regression formula is as follows:

$$\pi(x) = \frac{\exp(g(x))}{1 + \exp(g(x))}$$

Where: $\pi(x)$ = proportion of occurrences of an event; $g(x) = \beta + \beta_1x_1 + \dots + \beta_nx_n$.

The purpose of logistic regression modeling is to estimate credit risk and to determine the important variables in predicting credit risk. (Soric, Vlah, Resenzweig, 2009).

A good credit scoring model has the predictive ability to separate between good customers and bad customers. The credit scoring model can be evaluated by looking at the cumulative distribution function. The method used to measure the ability to predict credit scoring models is the GINI coefficient and the Kolmogorov-Smirnov test. (Rezac M & Rezac F 2011).

GINI coefficient is one method for measuring population inequality. This method measures the average absolute difference of each individual pair. The GINI coefficient compares the concentration of "bad" customers at low scores and "good" customers at higher scores. The aim is to find out that there is a significant difference between the percentage of "good" and "bad" customers for each of the same scores.

The Kolmogorov-Smirnov (KS) test is one of the conformity tests. This method is used to determine samples from a population originating from a particular distribution. This method compares two population distributions (Sabato 2010). The KS test is used by comparing the distribution between "good" and "bad" customers. A good credit scoring model results in a "bad" customer score value that spreads at a score lower than the "good" customer score. The difference between the two distributions shows that the credit scoring model can distinguish between "good" and "bad" customers. The difference is reflected in the KS Test Score. (Halim & Humira, 2014). Table 1 shows the interpretation of the magnitude of the KS test score. The higher KS score shows the credit scoring model can increasingly distinguish "good" clients from "bad" customers. Minimum KS score that is considered good is equal to 20. (Halim & Humira, 2014).

Table 1 – Interpretation KS Score

Score KS	Explanation
< 15	Poor predictive ability
15-20	Poor predictive ability but has the potential to be used and needs to be evaluated again
20-28	Minimal predictive ability
28-35	Medium prediktive ability
35-45	High predictive ability
>45	Prediction ability is very high

The description of some of the previous studies on risk management, especially credit risk and credit risk modeling, is considered relevant to be analyzed so that it can be used as a

reference and the location of the differences is known with the research that the authors did. Research on modeling of credit risk in mortgage financing is carried out by Andhayani, Harianto, and Achsan (2009). The purpose of his research is to measure the accuracy of the credit scoring model used today in the research on the feasibility of mortgage loans to prospective debtors. The method used is the ROC Test, Descriptive Analysis, Logistics Regression Analysis, and Wald Test. The research results are a credit scoring model that consists of 14 parameters with a ROC test result of 56.45%.

The credit scoring model research was also conducted by Halim and Humira (2014). The purpose of his research is the use of the Bayesian method in scoring modeling to determine the characteristics of customers good (current) and bad (non-current) where the data owned is small and the result of a combination of internal data and external data. The results showed that the Bayesian method had a good predictive level and a credit scoring model was formed consisting of 12 parameters. Testing the validity of the model using the Kolmogorov-Smirnov Test (KS) test. If the statistical test number is greater than critical value, then the model is considered invalid. The results of the KS test show a statistical test <critical value ($1.09 < 4.92$). This indicates that the model is valid.

Abdou, HAH, Alam, S and Mulkeen, J (2013) conducted a credit scoring model study aimed at comparing methods to determine the best model. This study aims to identify the best credit scoring model by comparing the Population stability test method with KS Goodness-of-fit and Chi Square goodness of fit, Discriminant analysis (DA), Logistic regression (LR), and Multi-layer Perceptron neural network (MP) . The results of this study indicate that the Multi-layer Perceptron neural network (MP) outperforms other techniques in terms of predicting credit applications that are rejected and has the lowest Cost of Classification Mistakes.

Research on the design and implementation of credit scoring models by comparing several methods was also carried out by Samreen, Zaidi, and Sarwar (2013) in Pakistan. This study compares the method of SCMC (Credit Scoring Model for Cooperation-Altman Z Score), LR (Linear Regression), and DA (Discriminant Analysis). The results showed that the SCMC method had a higher accuracy than LR and DA.

Research on Credit Risk Management in Indonesian Islamic Banking by Chusaini and Ismal (2013) measures and assesses credit risk management applications in Islamic banks based on credit index. Based on the analysis of primary and secondary data, the risk index of the Indonesian Islamic banking industry is in good criteria. the quality of credit risk management by the Islamic banking authorities can be realized by formulating banking regulations.

The study of the correlation between risk and efficiency in Islamic banks in the MENA region was carried out by Said (2013). The method used is Pearson correlation. The results of this study indicate that credit risk is negatively related to efficiency, operational risk has a negative correlation with efficiency, and liquidity risk shows a non-significant correlation to the efficiency of Islamic banks in the MENA region.

The difference between this research and previous studies is that this research was conducted with the aim of making a credit scoring model for the Islamic banking industry and designing a credit scoring model for mortgage financing by comparing several methods to produce the best credit scoring model.

METHODS OF RESEARCH

Based on the background and previous research, the researcher made a framework of thought as an illustration of the steps of the study. The first step is a descriptive analysis of the characteristics of PT Bank XYZ's mortgage financing. The purpose of this step is to provide an initial description of data characteristics and data quality.

The next step is to create a credit scoring model that can describe the characteristics of customers, both performance (good) customers and non-performance (bad) customers. Making a credit scoring model requires two stages. First, the effect of independent variables (X) on the dependent variable (Y) is partially analyzed as an initial step in the selection of significant variables. The method is WOE IV. The number of bad customers compared to the number of good customers is definitely not balanced. Therefore the second stage of this research is to

duplicate the characteristics of bad customers using the SMOTE method so that the amount can be relatively balanced with the number of good customers. Then an analysis of the effect simultaneously between the independent variables (X) that affect the dependent variable (Y) in the WOE IV analysis using logistic regression analysis.

The next step is to test the validity of the credit scoring model using Kolmogorov Smirnov (KS) analysis. The purpose of this test is to ensure the model is valid and can distinguish characteristics between good customers and bad customers.

The data of this study are secondary mortgage financing data in one of the largest Islamic banks in Indonesia, XYZ Bank financing period from January 2014 to December 2017 with a minimum quality financing maturity of 1 year. Cleansing data in this study is to eliminate irrational data and data that is not in accordance with the applicable provisions at XYZ Bank.

The variables in this study are independent variables (X) and response or dependent variables (Y). The total variables used were 38 variables. Variable X consists of demographic, financial, and collateral data of customers. Y variable is described by the quality of customer financing. Minimum quality of financing used is 1 year. The number of variables X used is 37. List of variables X and Y are in Table 2.

Table 2 – Variable List

No	Variable Name	No	Variable Name	No	Variable Name
1	Program Type	16	Length of Work	31	House Collateral
2	Filing Year	17	Economic Sector	32	Having Balance in Another Bank
3	Filing Month	18	Payment Method	33	Total saldo in Another Bank
4	Marital Status	19	House Type	34	Plafond
5	Education	20	Collateral Type	35	Collateral Ownership
6	Age	21	Saving Amount	36	First Digit of Office Zipcode
7	Marital Status	22	Land Area	37	The First 2 Digit of Office Zipcode
8	Religion	23	Building Area	38	Quality of Financing
9	First Digit of Home Zipcode	24	Ratio Building to Land Area		
10	The First 2 Digit of Home Zipcode	25	Tenor		
11	Length of Stay	26	Debt Service Ratio		
12	The Number of Dependents	27	Financing To Value		
13	Source of Income	28	Income		
14	Form of Business Entity	29	Product Type		
15	Job	30	Home Status		

RESULTS AND DISCUSSION

Data on cleansing results are 16,242 data. The proportion of cleansing data to the initial data used is 57.42%. Data on cleansing results are still representative of all data. The data set for descriptive analysis is the cleansing data and collectibility data for good and bad categories with a minimum maturity of 1 year. In this study, collectability 1 was in the good category and 2B collectability until collectability 5 was in the bad category. 2A collectability is not used because it is in an uncertain category. Collectability of 2A is usually caused by late payment reports so that it cannot be categorized as good or bad. The data set formed is 12,795 data. The results of the descriptive analysis show that not all variables can provide a description of characteristics that can distinguish between good customers and bad customers. the variables are education, marital status, number of dependents, source of income, product type, and house collateral.

The steps to make a credit scoring model are WOE IV analysis, logistic regression analysis, and validity test. The results of WOE IV analysis are 4 variables that have strong predictive abilities, namely the first 2 digit zipcode, both home zipcode and office zipcode, saving amount, and have balances in other banks. Zipcode variables illustrate that the characteristics of each region can be different. This will relate to account maintenance capabilities in each region. Variable saving amount and having a balance in another bank illustrates that customers have the ability to pay and have good faith because they want to notify additional information regarding the customer's wealth.

The logistic regression results show that not all variables have a significant effect to differentiate the characteristics of good and bad customers. The significance used is a real level of 0.01. This is still relevant because this research belongs to the social science category.

Table 3 – Comparison of Outputs for each Analysis^a

No	Variabel	Deskriptif	WoE IV	Logistic Regression with ImbalanceData	Logistic Regression with SMOTE
1	Filing Year	-	-	-	v
2	Education	v	-	v	-
3	Marital Status	v	-	v	v
4	The First 2 Digit of Home Zipcode	-	v	v	v
5	First Digit of Home Zipcode	-	v	v	-
6	Length of Stay	-	-	v	v
7	The Number of Dependents	v	-	-	-
8	Source of Income	v	v	-	-
9	Form of Business Entity	-	v	-	-
10	Job	-	v	-	-
11	Length of Work	-	-	v	v
12	Economic Sector	-	v	v	v
13	Saving Amount	-	v	-	-
14	Land Area	-	-	-	v
15	Building Area	-	-	-	v
16	Ratio Building to Land Area	-	-	v	v
17	Debt Service Ratio	-	-	v	v
18	Financing To Value	-	-	v	-
19	Income	-	-	v	-
20	Product Type	v	-	-	-
21	Home Status	v	-	-	-
22	House Collateral	-	-	-	v
23	Having Balance in Another Bank	-	v	v	-
24	Plafond	-	-	-	v
25	Collateral Ownership	-	-	v	v
26	The First 2 Digit of Office Zipcode	-	v	v	v
27	First Digit of Office Zipcode	-	v	-	-

^a The sign "v" indicates the significance of each method in each variable.

The output of each analysis is different. The output of descriptive analysis and WoE IV analysis is different than the output of logistic regression analysis. This is because descriptive analysis and WoE IV analysis analyze the effect of each variable X on Y partially without considering the interaction of each variable.

The output of logistic regression analysis with data imbalance and the SMOTE method shows results that are not much different. Variables that have significant effect are marital status, the first 2 digits of home zipcode, length of stay, length of work, economic sector, and the first 2 digits of office zipcode.

Credit scoring models that are formed using logistic regression analysis must be tested for validity. The results of the validity test using the Kolmogorov-Smirnov test show that the model is valid and has the ability to distinguish between good customers and very high bad customers (KS value > 45). The results of the validity test between data train and test data show that the values are relatively the same in the range of 60 so that this indicates that the model formed is relatively stable and can be used to predict mortgage financing applications that will be proposed later.

Confusion matrix can test the accuracy of the credit scoring model. Confusion matrix is a matrix that describes the ability of a model to predict good and bad customers. Information that can be taken from Confusion matrix is Accuracy, sensitivity, and specificity. Sencitivity is the ability to predict good customers and turns out to be good. Specificity is the ability to predict customers bad and turns bad. Accuracy is the average of sencitivity and specificity.

Table 4 – Validity Test Kolmogorov-Smirnov

Set Data	Logistic Regression with Imbalance Data	Logistic Regression with SMOTE
Train	68,77	68,39
Test	64,95	63,81

Table 5 – Prediction Ability Test with Confusion Matrix

Prediction Ability	Logistic Regression with Imbalance Data	Logistic Regression with SMOTE
<i>Accuracy</i>	98,81%	87,77%
<i>Sensitivity</i>	88,10%	88,10%
<i>Specificity</i>	23,40%	65,96%

In table 5, the accuracy and sensitivity of the credit scoring model with imbalance data are higher than the credit scoring model using the SMOTE method but the specificity is lower. The purpose of making a credit scoring model is to avoid customers who have greater traffic opportunities so that the credit scoring model chosen is a model with higher specificity, namely the model that uses the SMOTE method.

CONCLUSION

The results of descriptive analysis and WoE IV analysis compared the output of logistic regression analysis were relatively different. This is because descriptive analysis and WoE IV partially analyze the effect of variable X on Y without considering the interaction of each variable. The credit scoring model formed using data imbalance and using the SMOTE method is valid and stable with excellent predictive abilities. The recommendations in accordance with the results of the design of the credit scoring model are by making a credit scoring model procedure. If safeguarding the quality of financing takes precedence, the logistic regression analysis with the SMOTE method takes precedence because it has a higher specificity. But if the business focus is growth, then logistic regression analysis using imbalance data is preferred. This is because logistic regression analysis using imbalance data has a higher level of accuracy.

RECOMMENDATIONS

Designing a credit scoring model is better with several methods in order to choose the best alternative in determining the best credit scoring model. Credit scoring models cannot stand alone. There needs to be planning and control that involves stakeholders so that the use of credit scoring models is more optimal. Credit scoring models can also be developed using artificial intelligence. Artificial intelligence is very helpful in evaluating and updating the credit scoring model.

REFERENCES

1. Abdou HA, Alam AT, Mulkeen J. 2014. Would Credit Scoring Work For Islamic Finance? A Neural Network Approach. *International Journal of Islamic and Middle Eastern Finance and Management*. 7(1): 112-125
2. Andhayani D, Harianto MS, Achsani NA. 2009. Pengembangan Model Credit Scoring Untuk Proses Analisa Kelayakan Fasilitas Kredit Pemilikan Rumah (Studi Kasus Di Bank Bukopin). *Journal of Management & Agribusiness*. 6(1): 65-73
3. Bakhtiar T, Sugema I. 2012. Masalah Informasi Asimetrik dalam Sistem Perbankan Syariah: Adverse Selection Problem. *Seminar Nasional dan Call For Papers*. ISSN 978-979-3649-65-8
4. Bellotti T, Crook J. 2013. Forecasting and stress testing credit card default using dynamic models. *International Journal of Forecasting*. 29(4):563 – 574.
5. Chusaini A, Ismal R. 2013. Credit Risk Management in Indonesian Islamic Banking. *Afro Eurasian Studies*. 2 (1): 41-55
6. Durand D. 1941. *Risk Elements in Consumer Instalment Financing*, Studies in Consumer Instalment Financing. New York (US): National Bureau of Economic Research.
7. Ganbold B. 2008. *Improving Access to Finance for SME: International Good Experiences and Lessons for Mongolia*. Chiba (JPN): Inst. of Developing Economies, Japan External Trade Organization. ZDB-ID 25923456.: 438.

8. Graddy DB, Spencer, Austin, William B. 1985. Commercial Banking and the Financial Service Industry. Virginia (US): Prentice Hall.
9. Hand DJ, Jacks SD. 1998. Statistics in Finance. London (UK): Arnold Applications of Statistics.
10. Halim M. 2015. Faktor Internal dan Faktor Eksternal yang Mempengaruhi Non-Performing Loan di Bank Pemerintah dan Bank Swasta Jawa Timur Periode 2008-2012. *Jurnal Ilmiah Mahasiswa Universitas Surabaya*. 4(2):1-20.
11. Halim S, Humira YV. 2014. *Jurnal Teknik Industri*. ISSN 2087-7439
12. Hwarire C. 2012. Loan Repayment and Credit Management Of Small Businesses: A Case Study Of A South African Commercial Bank. A Paper Presented At The African Development Finance Workshop 7-8 August 2012.
13. Kasmir. 2002. *Dasar-Dasar Perbankan*. Jakarta (ID): PT. RajaGrafindo Persada.
14. Khodabakhshian A, Khosravi M, Mashay-ekhi AN. 2013. Adverse Selection in SME Financing: When Both Bank and Innovative Entrepreneur Lose. *Conference Proceedings The 31st International Conference of the System Dynamics Society Cambridge, Massachusetts (US)*. July 21-25, 2013. ISBN 978-1-935056-12-06.
15. Kusuma, K. A. S., Ustriyana, I. N. G., Wulandira, A. A. A. (2016). Analisis Kredit Macet pada KPN Satya Bakti Kecamatan Jembrana Kabupaten Jembrana. *Jurnal Agribisnis dan Agrowisata*, 5(1): 1-15
16. Lean J, Tucker J. 2001. Information Asymmetry, Small Firm Finance and the Role of Government. *Journal of Finance and Management in Public Services*. 1 (1). pp. 43-60. ISSN 1475-1283.
17. Lewis EM. 1992. *An Introduction to Credit Scoring*. California (US): Fair, Isaac & Co., Inc.
18. Lihani, R., Ngadiman, Hamidi, N. (2013). Penanganan Kredit Bermasalah Guna Meminimalkan Risiko Kredit (Studi pada PD BPR BKK Tasikmadu Karanganyar). *JUPE*, 1(3): 1-11
19. Maziku M. 2012. Credit Rationing for Small and Medium Scale Enterprises in the Commercial Bank Loan Market. Presented at REPOA's 17 th Annual Research Workshop held at the Whitesands Hotel, Dar es Salaam, Tanzania; March 28-29, 2012.
20. Merton RK. 1967. *Social Theory and Social Structure*. New York (US): The Free Press.
21. N. V. Chawla, K. W. Bowyer, L. O. Hall, & W.P. Kegelmeyer. 2002. "SMOTE: synthetic minority over-sampling technique," *J. Artif. Intell. Res.* 16(1): 321–357
22. OJK. (2017). *Snapshot Perbankan Syariah Indonesia 2017*. Citing internet resources URL <https://www.ojk.go.id/id/berita-dan-kegiatan/publikasi/Pages/Snapshot-Perbankan-Syariah-Indonesia-2017.aspx>
23. OJK. (2017). *Statistik Perbankan Indonesia*. Citing internet resources URL <https://www.ojk.go.id/id/kanal/perbankan/data-dan-statistik/statistik-perbankan-indonesia/Default.aspx>
24. Rezac M, Rezac F. 2011. How to Measure The Quality of Credit Scoring Models. *Finance a uver-Czech Journal of Economics and Finance*, 61, 2011, no.5.
25. Said A. 2013. Risks and Efficiency in the Islamic Banking Systems: The Case of Selected Islamic Banks in MENA Region. *International Journal of Economics and Financial Issue*. 3 (1): 66-73
26. Samreen A, Zaidi FB, Sarwar A. 2013. Design and Development of Credit Scoring Model for the Commercial Banks in Pakistan: Forecasting Creditworthiness of Corporate Borrowers. *International Journal of Business and Commerce*. 2(5): 1-26
27. Saunder A, Cornett MM. 2006. *Financial Institutions Management: A Risk Management Approach*, International Edition. Toronto (US): McGraw Hill.
28. Soebagio H. 2005. Analisis Faktor-faktor yang Mempengaruhi Terjadinya Non Performing Loan (NPL) pada Bank Umum Komersial [tesis]. Semarang (ID): Universitas Diponegoro.
29. Soric K, Vlah S, Rosenzweig VV. 2009. Logistic Regression And Multicriteria Decision Making In Credit Scoring. University of Zagreb, Faculty of Economics.
30. Staten M. 2014. *Risk-Based Pricing in Consumer Lending*. Washington (US): Center for Capital Markets Competitiveness.

31. Stiglitz J, Weiss A. 1981. Credit rationing in markets with imperfect information. *American Economic Review*. 71(3): 393-410.
32. Supriyadi. (2016). Desain Penyelesaian Kredit Macet Pembiayaan Murâbahah Bmt Bina Ummat Sejahtera Melalui Pendekatan Socio Legal Research. *AL-'ADALAH*, 13 (2): 191-204
33. Taswan. (2011). Konsekuensi Informasi Asimetris dalam Perkreditan dan Penanganannya Pada Lembaga Perbankan. *Fokus Ekonomi (FE)*, 10(3): 226-234
34. Thomas LC, Edelman DB, Crook LN. 2002. *Credit Scoring and Its Applications*. Philadelphia (US): Society.
35. Vatansever M, Hepşen A. 2013. Determining Impacts on Non-Performing Loan Ratio in Turkey. *Journal of Finance and Investment Analysis*. 2(4):119-129.
36. Yudha, A. T. R. C. (2015). Jaminan dalam Aqad Pembiayaan Muđārabah Perbankan Syariah di Wilayah Surabaya. *Al Tijarah*, 1(1): 37-58
37. Zeng G. 2013. Metric Divergence Measures and Information Value in Credit Scoring. *Journal of Mathematics (US)*: Hindawi Publishing Corporation.

DOI 10.18551/rjoas.2019-08.08

APOLOGIA CORRUPTION VS PUNITIVE RESPONSES: A CONTENT ANALYSIS AND AN EXPERIMENTAL STUDY ON APOLOGIA STRATEGY OF THE SUSPECTED CORRUPTORS AND THE PUBLIC RESPONSES

Kriyantono Rachmat

School of Communication, University of Brawijaya, Malang, Indonesia

E-mail: rachmat_kr@ub.ac.id

ABSTRACT

Apologia and Attribution theories are used to explain whether the apologia strategies of the suspected corruption affect the public's punitive responses in crisis situation. Attribution theory suggests that every individual or institution may be criticized for their actions and suggests the possible consequences of attribution on punitive responses. Apologia theory suggests anticipative strategies for possible accusations to gain positive attribution. This research applies a content analysis on 50 news containing the apologia strategies of the corruption actors published in online media and an experiment on 100 participants to measure whether the strategies influencing the public's punitive responses. The findings indicate that both actors, the caught and the suspects, use predominantly bolstering strategies. Bolstering strategy results in much higher sympathy for both actors and reduces the public's punitive responses against the actors although it is not likely to completely remove the public anger.

KEY WORDS

Apologia, attribution, corruption, crisis, public relations.

Apologia theory (1973) and Weiner's attribution theory (2006) can be useful frameworks for crisis research. Apologia strategies are applied by individuals and their organizations to defend themselves when they are accused of corruption, "the accused chose to face his accusers and to speak in defending of himself" (Ware & Linkugel, 1973, p. 273) in order to gain good impression from other people (Goffman, 1959). The theory has moved from not only serving as a guide for individuals to be absolved but also for organizations in crisis since the organization has a reputation that has a chance of attack from the outside so that management can do self-defence to respond it (Coombs, 2015; Coombs & Holladay, 2011; Hearit, 2006; Hoffmann & Barnett, 2015; Kriyantono & McKenna, 2019). Furthermore, the organizational reputation is also affected by the good or bad behaviour of individual members because the organization is a unified system (Kriyantono, 2017). The interrelationship between organizations and individuals regarding the apologia strategy is called the apologia of association (Roberson & Connaughton, 2010). Hence, it is interesting to evaluate the effect of the individuals and organizations' apologia strategies toward the public's punitive responses.

This research contributes to filling the void of applying apologia and attribution theories in corruption cases in Indonesia by confirming the premise of both theories in individuals accused of corruption, both corruption suspects who arrested while committing corruption and suspects who were not caught red-handed. It is also important since the level of corruption in Indonesia is still below from the median level and the effort to wipe out corruption seems run slowly since the corruption perception index rises only five point from 32 to 37 during 2012-2017, with the interval between 0-100 (Kriyantono, Destrity, Amrullah & Rakhmawati, 2017), and is on the rank of 90 from 176 nations (Toriana, 2017). In addition to Lehmberg & Hicks's (2018) findings that apologia strategy differs among countries, the research contributes to the growth of public relations theories and practices in Indonesia context since public relations study has been dominated by Western perspective (Kriyantono & McKenna, 2017).

LITERATURE REVIEW

Apologia is rooted in a rhetorical genre that refers to self-defence (Coombs, Frandsen, Holladay & Johansen, 2010; Ware & Linkugel, 1973). Ware and Linkugel (1973) views apologia as speak of self-defence to respond to the attack of the character it receives, which includes the questioning of man's moral nature, motives, and reputation. These questions are linked to Downey's (1993) definition of apologia as a character defence rather than the defence of policies and ideas (Cited in Arendt, LaFleche, & Limperopulos, 2017). Individuals and organizations may be criticized for their actions, and how to respond is a form of communication known as apologia (Heath, 2013). Apologia theory originated in the defence of an individual (Ware & Linkugel, 1973), but some literature affirms that it has evolved in offering solutions for the organizations in dealing with the accusations during a crisis as a crisis communication strategy (Chikudate, 2010; Coombs, 2015; Coombs et al., 2010; Hearit, 1995, 1995; Kriyantono & McKenna, 2019; Seeger & Sellnow, 2016). A meta-analysis on articles of 51 journals from 1986-2016 reveals that apologia has been applied in image repair and crisis communication literature (Arendt et al. 2017).

As a crisis communication strategy, apologia has been applied to restore the reputation (Stewart, 2008) since the crisis threatens the reputation of the individual or company so that a defence attitude is required (Coombs et al., 2010). Apologia theory is also text-oriented and it learns what and how individuals and organizations communicate when the crisis strikes its image or reputation (Coombs & Holladay, 2010). Crises are unexpected events that create uncertainty and endanger the image, identity, or reputation of individuals or companies (Fearn-Banks, 2017; Kriyantono & McKenna, 2019; Taneja, Pryor, Sewell, S, & Recuero, 2014). Individuals and companies are faced with various crisis potentials, such as technological crises, confrontations, malevolence, natural disasters, products, and management (Coombs et al., 2010; Kriyantono, 2015), which stimulate the emergence of public attribution of who should be responsible (Coombs, 2015; Kriyantono, 2012).

Attribution theory predicts that public is more likely to punish an actor when the actor is attributed guilty (Weiner, 2006). As a result, a proper strategy is needed to manage public perceptions of crisis, image, and reputation (Coombs, 2010; Knoespel, 2009). In this point, apologia posits an important role since "apologia strategies provide the basis for articulating crisis response strategies, ways to categorize what manager said and did after a crisis" (Coombs, 2010, p. 340).

The concept of self-defence in apologia looks at the types of allegations and facts (Hearit, 1995; Heath, 2013; & Seeger & Sellnow, 2016), therefore, apologia has four strategies: Denial that denies the allegations and considers the allegations wrong; Bolstering that focuses on the positive, strength, and advantages of past relationships; Differentiation aims to change the meaning of the audience about the crisis; and the transcendence that defines the context in the form which is wider and abstract (Ware & Linkugel, 1973; Coombs et al, 2010; Heath, 2013; Jarvis, 2016).

The process of attribution is preceded by certain considerations before the individual attributes to a thing (Weiner, 2006). These considerations according to McDermot (2009) are influenced by three things: (1) consensus, which is a habit commonly done by certain people in a group to become a collective agreement, (2) consistency, assessment of individual behavioural tendencies (3) Distinctiveness, an attribution process based on behavioural diversity in different situations. These three considerations essentially derive on basic assumptions of attribution theory: The individuals have a tendency to find out and to explain the cause of an crisis event, the attribution will affect each individual's responses in the next situation, and the individuals have reasons to build the impression or judgment on other people (Heath, 2005; McDermott, 2009).

It can be concluded that there is a link between individual attributions and punitive responses, that is, punitive responses are strongly influenced by emotional factors such as anger and sympathy which will also determine the type of attributions to a particular phenomenon (Palmieri & Peterson, 2009; Weiner, 2006). Furthermore, Weiner (2006) states

that the emotions starts from the process of interpreting the event that is driven by the individuals' desire to find out what happened.

The media frame determines the public's emotional reactions to support or punish other individuals or organizations that are experiencing a crisis (Tennert, 2014). Therefore, this research evaluates the media news to determine the apologia strategies from the suspects.

Corruption is a crime involving ongoing coordination between various agencies (Palmer & Michael, 2006). Corruption is a massive problem in many countries, especially in developing countries, including Indonesia (Kriyantono, et al., 2017). In Indonesia, "because of many cases conducted, corruption is known as its own culture" (Pratomo & Kriyantono, 2016, p.5). There are interesting findings from The Indonesia Corruption Watch that most corruptors come from government apparatus (Egi, 2016). Corruption committed by government officials has a huge impact because it threatens the identity and reputation of either the individuals or their institutions (Waymer & Heath, 2007; Kriyantono et al., 2015).

Apologia can be applied in areas such as business (Hearit & Brown, 20014), sports (Glantz, 2010), and politics (Kiambi, 2012). This current research applies apologia theory in the field of corruption since the corruptors communicate to defend themselves from the allegation. This corruption will encourage public attribution related to responsible perpetrators (Benoit, 1995). Apologia strategy, thus, can be used as communication crisis tools to reduce the level of negative emotions experienced by the public (Coombs et al., 2010).

Several studies have been conducted to evaluate apologia as crisis response strategies. Tollefson (2000) compares Newsweek's apology strategy and its editor, Klein, in responding to allegations of falsehood related to anonymous authorship identity cases to boost sales. Klein uses a denial strategy to regard accusations based only on gossip and his actions are not a big deal. Klein also uses a differentiation strategy, which declares himself as a victim when he has violated the journalist's ethical code. While Newsweek as an organization expressed regret for Klein's actions and promised not to damage public confidence again. Tollefson (2000) finds Newsweek's strategy is more effective at muffling controversy and public anger than Klein's denying strategy despite evidence that he was guilty.

Hearit and Brown (2004) also examines the crisis of uncovering evidence of business fraud that befell Merrill Lynch. Merrill Lynch tends to use denial and scapegoating strategies rather than expressing regret to dampen public anger. Merrill Lynch's strategy cannot maintain its reputation because there is undeniable evidence that the company is guilty although in the end Merrill Lynch paid a fine of 100 million dollars as a consequence of his fraudulent actions. Kiambi (2011) examines Kenyan law minister apologia strategy. The minister faces allegations of contempt for women due to her controversial remarks, admits his mistake and apologizes for stifling the women's group protests in Kenya. In the next government, he was again appointed to minister because his reputation was maintained.

Glantz (2010) who analysed the crisis response of American bicycle athlete Floyd Landis who was accused of using doping to win the Tour De France race concludes that differentiation and denial strategies cannot sustain Landis's reputation since the urine test proves the athlete consumes the synthetic testosterone. Landis's doctor uses a bolstering strategy by promoting how hard Landis worked, but, this strategy did not work because the public judged Kay's doctor to have personal affinity with Landis.

It can be concluded that a guilty individual or organization is incapable of defending its reputation in crisis when using denial strategies and bolstering strategy depends on the credibility of the third party. It reinforces Harris's (2006) opinion that apologies and accountability statements become mandatory features of apologia which are applied in all languages and situations.

On the other hand, some studies (Benoit 1995, & Coombs, 1995) suggest that denial strategies may be effective in protecting reputation if this strategy can show the public that no crisis has occurred. This can happen because, referring to Regester & Larkin (2008), perception is reality, and reality in crisis is built from public perceptions. Denial strategies are not always unsuccessful to implement, effective denials to maintain a crisis-time reputation in

a particular scenario or situation (Vand der Meer, 2014). According to Towner (2009, p. 439), "a denial of an allegation or fact functions as a useful strategy (as long as the truth is not distorted)..."

Coombs, Holladay and Claeys (2016) have proved that individuals or organizations that use denial and then found not guilty can keep their reputations in good standing and lower public anger. Denial is a strategy or claim that is subject to verification, "denial should be effective only if the organization bears no responsibility for the crisis" (Coombs, Holladay & Claeys, 2016. h. 385). Therefore, it can be concluded that individuals or organizations that are not proven guilty tend to be able to maintain their reputation in crisis when using denial strategy.

In the case of corruption, there are two situations related to the aspects of evidence of guilt: the caught and the suspect. According to the Indonesian Law Regulation, the caught is a person who was arrested while committing a crime (in hand arrest). The suspect is a person who, by his actions or his circumstances based on preliminary evidence, is suspected of being a criminal offender. It can be said that the caught has a greater potential to affect the individual's reputation.

Based on Goffman (1959) and Johansen (2007), individuals intentionally use verbal and nonverbal communication to manage the impression of others on the individual's self when interacting with others. "All symbols such as clothing worn, walking, and talking are used for self-presentation in order to get a positive impression from others" (Kriyantono, 2017, p.222). The statements of corruption suspects, as apologia strategies, are widely communicated through the mass media to the public. Therefore, the researchers formulate the propositions:

P1: The caught tends not to use the denial strategy predominantly to maintain reputation in times of crisis.

P2: The suspect tends to use the denial strategy predominantly to maintain reputation in times of crisis.

Apologia research is seen as a sender oriented because it focuses on how the sender chooses a message to be communicated to the public (Coombs et al., 2010; Lee, 2004, 2005), however, researcher argue that it is important to measure the effectiveness of apologia strategies in maintaining the reputation of individuals or organizations. Apologia is said to succeed if individuals or organizations can articulate their behaviour from allegations of abuse and apologize, and show a corrective process because apologia is not just a word (Hearit & Brown, 2004). The aim of apologia is not to accept forgiveness (Hearit, 2006), but 'to avoid punishment and reputation damage' (Lazare, 2004). In addition, apologia strategies which are spread across the mass media can influence public attributions and enable the emergence of punitive responses (Jeong, 2009; Kriyantono, Riani, & Safitri, 2016), therefore, the researcher formulates proposition 3:

P3: Public tends to provide punitive responses for the caught.

METHODS OF RESEARCH

The research applied both content analysis and experiment. Content analysis was applied to measure the actors' strategies and experiment was implemented to measure the public's responses.

A content analysis is used to prove propositions one and two, while an experiment is used to test third propositions. Online media is chosen because "people are now more into online and audio-visual media" (Tapsell, 2014, p.184) so that this online exposure will likely to determine public's attribution. Furthermore, content analysis has been used to study the content of document, such as newspapers, reports, social networking sites and similar media (Kriyantono, 2014). This study analyses the quote news from the corruption suspects cited by kompas.com, a top brand in online news category (Ika, 2016).

The researchers chose corruption cases that received public attention for dominating media coverage during 2012-2018. The caught red-handed actor was the chief of United Development Party (2019), while the not caught red-handed actor was involving the General

Secretary of Golkar Party (2019). This research takes all of 50 news the corruption news from both actors listed in kompas.com.

This study used an analysis unit of reference, through which the researchers collected and calculated a set of words or sentences in accordance with predetermined categories. From Ware & Linkugel (1973); Hearit (1995); Tollefson (2000); Hearit and Brown (2004); Glantz (2010); Heath and O'Hair (2010); Heath (2013); Kriyantono (2017); Jarvis (2016), the reference categories contained the types of apologia strategies: Denial, bolstering, differentiation and transcendence. Denial had the keywords: refusing, not guilty, not involved, unintentional action, and improper accusation; Bolstering had with the keywords: reminding people of positive contributions, reminding the many accomplishments, responsible but still connecting positive things and emphasizing positive nature to offset the allegations; Differentiation incorporated the keywords: redrawing the events of the crisis, reframing the accusations as positive, influencing people to see their actions from another perspective, asking the community to postpone its assessment until there is evidence; Transcendence included the keywords: define the accusations into the wider context, compare the allegations with the more important value so that the error rate will decrease, and put new facts which benefits him.

The experiment consisted of 100 participants from graduate and postgraduate students of communication science, Brawijaya University. The experiment was conducted after the researcher analysed content analysis findings. The research used the news contain bolstering statements from the actors as a result that content analysis revealed that most actors applied bolstering as dominant strategy. *First*, the participants were asked to read news containing the caught's bolstering statements, then, they were asked to fill the questionnaire of punitive responses. *Second*, they were asked to read news containing the suspects' bolstering statements, then, they were asked to fill the same questionnaire.

The questionnaire incorporates questions which were constructed from Jeong's (2009) punitive opinions and behaviours. Punitive opinions were measured by asking participants to indicate the extent to which they supported punishment of the actors. Response options ranged from no punishment (1) to severe punishment (7). Punitive behaviours were measured by asking: "would you be willing to boycott the corruption suspect' party?" Response options were ranged from strongly disagree (1) to strongly agree (7).

RESULTS AND DISCUSSION

There were 22 news related to the General Secretary of Golkar Party as corruption suspects who were not caught red-handed. In one news can be found more than one apologia strategy and more than one statement for one apologia strategy (Table 1).

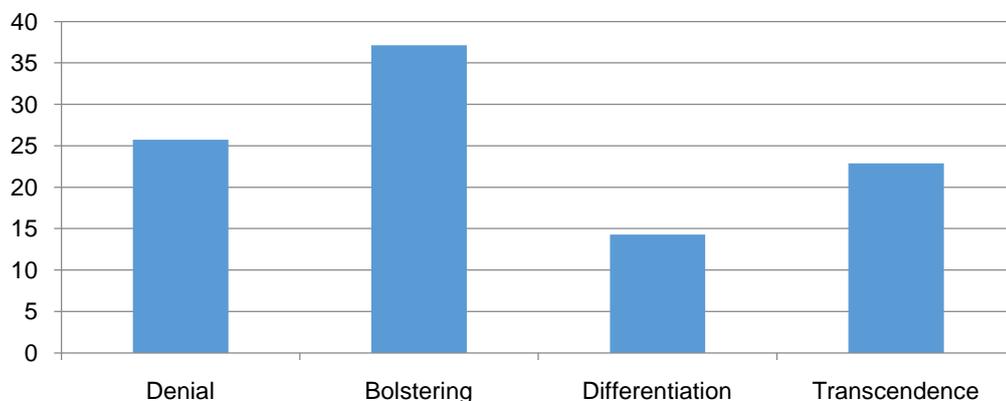


Figure 1 – Apologia Strategy of the General Secretary of Golkar Party, %

Although the General Secretary of Golkar Party is the actor who not caught red-handed, He focuses on bolstering strategy. Based on the Figure above, it can be seen in Kompas.com news related to the statements of the General Secretary of Golkar Party. It means that the actor tries to convince the public of having positive contributions, many accomplishments, and connecting positive things and emphasizing positive nature to offset the allegations. However, the actor also uses quite a lot of denial strategies where this strategy is the second most after the bolstering.

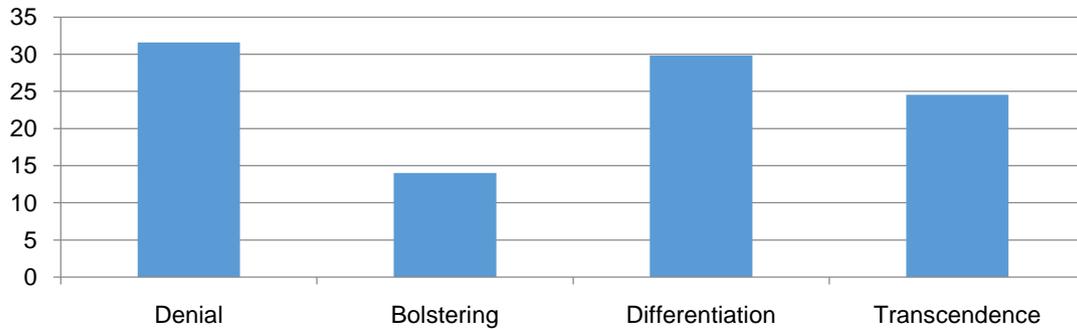


Figure 2 – Apologia Strategy of Apologia the chief of the United Development Party, %

Figure 2 describes that the chief of the United Development Party uses the denial strategy as the main strategy. He placed the bolstering strategy as the least carried out strategy. From the findings of the data, it can be concluded that propositions one and two turned out to be unacceptable. Data shows the opposite, that is, suspects who are caught in a capture operation focus more on denial strategies and suspects who are caught not by hand capture are more focused on bolstering, not denial.

RESULTS AND DISCUSSION

The table below shows the results of experimental research between the news and suspected corruption cases that were caught in the capture operation and not. Researchers compared the level of tendency of public punishment against suspects based on the type of arrest and crisis management strategies used. The following researchers present the results of the comparison in the table below:

Table 1 – Comparison of Mean Scores of Apologia Corruption Experimental Research

No	Question	Maximal Score	Mean Score	
			Non Apologia	Apologia
1	After reading the news that was presented to you, how big the penalty scale must be received by the suspect or defendant of corruption?	7.00	6.12	5.76
2	After reading the news presented to you, how big is the scale of your trust in the suspect institution or the defendant of the corruption case?	7.00	3.00	2.66
3	After reading the news presented to you, will you choose the party of the suspect or defendant of the corruption case?	7.00	1.98	2.94
4	After reading the news presented to you, how big is the scale of your anger to the suspect or defendant of corruption?	7.00	5.00	5.18
5	After reading the news presented to you, how large is your sympathy to the suspect or defendant of corruption?	7.00	2.26	2.5

There are five questions compared in the table above. First, the researcher asked about the scale of punishment that must be received by suspects of corruption. The researcher placed seven scales to assess these things ranging from "punished" to "hugely heavy". All respondents said they agreed that the corruptors must be severely punished

referring to the scale figures produced. It can be seen that the use of an apology strategy to deal with a crisis of corruption situation is quite effective. Corruption news that contains non apologia strategy shows a tendency for more punishment by the public than the news of corruption that contains apologia strategies. The dominance of the apology strategy in this context is bolstering.

The above results also apply to issues of trust in political parties from suspects and sympathy. The apologia strategy that is used is positively indicated by the results which state that the public is much more sympathetic to suspects who use apologia strategies. This also implies the choice of political party preferences by the public. The public also places much higher trust in political parties as suspects facing this crisis using an apologia strategy. Although the indicators of trust and sympathy are not on a good scale, but at least suspects who use an apologia strategy get higher sympathy and trust compared to suspects who do not use an apologia strategy.

This finding proves the third hypothesis that public tends to provide punitive opinions and behaviours for suspected who are arrested in hand arrest operations corruption cases. This assessment is certainly greatly influenced by the strategies used during the crisis. Referring to the results of this study, one way that can be used to suppress judgment and the tendency to punish by the public is to apply an apologia strategy. However, one thing that has not been able to overcome using this strategy is the level of public anger over acts of corruption committed by suspects.

Based on the results of the study, it was obtained data that alleged statements almost entirely used an apologia strategy. This shows that the statements of both direct and indirect sentences used by suspects and suspected corruptors are a form of apologia strategy in response to the accusations it receives. Heath (2013) explains that individuals and organizations may be criticized for their actions and the way they respond is a form of communication commonly known as apologia. Seeger and Sellnow (2016) also say that apologia describes the communication behaviour that occurs after a crisis or the accusations that lead to him happening. This communication behaviour attempts to explain what happened and improve and restore the reputation of image damage. In selecting messages for the public, the Apology Theory produces a premise that strategies used by individuals or organizations in responding to crises are adjusted to the specific situation faced, namely the types of accusations and facts that exist (Hearit. 1995; Botan & Hazleton. 2006; Heath. 2013; & Seager & Sellnow. 2016).

The use of a non-dominant denial strategy is reinforced by the opinion of Coombs. Holladay & Claeys (2016. p. 385) which states that denial is a strategy or claim subject to verification, "Denial should be effective only if the organization bears no responsibility for the crisis " Denial is effective for maintaining reputation during a crisis in certain scenarios or situations (Vand der meer. 2014). According to Towner (2009. p. 439). "A denial of an allegation or fact functions as a useful strategy (as long as the truth is not distorted) ..." Based on the situation and facts that exist according to the Apology Theory and supported by the opinion of Vand der Meer (2014) and Towner (2009).

Based on the above explanation, the corruptors who were not arrested in hand-arrest operations were not proven to tend to use denial strategies predominantly to maintain reputation during a crisis. Even so, the use of bolstering and differentiation strategies in suspected cases and suspected corruptors of government officials who are not arrested by hand arrest operations is not inappropriate to use because Glantz (2010) argues that bolstering is an effective strategy to improve one's image. In line with Glantz (2010), Harris (2006) also said that the statement of apology and accountability became a mandatory feature of legitimate and valid apologies in all languages and situations.

Pressure from the public and the media to admit mistakes makes companies use ambiguous messages to deny that they have done wrong but promised not to do it again (Hearit & Brown, 2004; & Kriyantono, 2014). Ware and Linkugel (1973) describe denial strategies and differentiation generally used to 'clear names'. The purpose of doing apologia is not to accept forgiveness (Hearit, 2006), but to avoid punishment and reputation damage (Lazare, 2004).

The use of bolstering strategies that emphasize positive characteristics such as being responsible, apologizing, reminding of positive contributions and achievements that have been achieved in accordance with public relations activities as a communication technique, namely the organization or institution realizes that all organizational members have the potential to influence their image in the eyes public (Kriyantono, 2016).

CONCLUSION

Based on the results and discussion of the research described, it can be concluded that: the use of an apologia strategy in responding to a crisis or an assumption that attacks an individual is adjusted to the specific situation faced, namely the types of accusations and facts that exist. Based on the experimental research that has been done it can be concluded that the choice of strategies used to overcome the reputation crisis when corruption will affect public assessment. This is due to the fact that the public tends to give opinions and punishments to suspects in corruption cases caught. An apologia strategy such as bolstering in a situation like this will result in much higher sympathy than using a denial strategy. The use of bolstering strategies can also reduce the punitive behaviour of the community against suspects. Furthermore, even though they are not in a good position. The suspects who use bolstering strategies can have more positive implications for political parties or institutions of origin than the suspect compared to suspects who use the denial strategy. Although this strategy cannot reduce the tension of public anger due to acts of corruption that have been committed. This strategy can only manage the reputation of the suspects.

REFERENCES

1. Arendt. C., LaFleche, M., & Limperopulos. M. A. (2017). A qualitative meta-analysis of apologia image repair and crisis communication: Implications for theory and practice. *Public Relations Review*. 43. 517-526.
2. Benoit. W. L. (1995). Sears's repair of its auto service image: Image restoration discourse in the corporate sector. *Communication Studies*. 46. 89-105.
3. Chikudate. N. (2010). Reinterpreting corporate apologia as self-discipline. *Corporate Communication: An International Journal*. 15(4). 397-409.
4. Coombs. W. T. (2015). *Ongoing crisis communication: Planning, managing, and responding*. California: Sage.
5. Coombs. W. T., & Holladay. S. J. (2011). An exploration of the effects of victim visuals on perceptions and reactions to crisis events. *Public Relations Review*. 37. 115-120.
6. Coombs. W. T., Frandsen. F., Holladay. S. J., & Johansen. J. (2010). Why a concern for Apologia and crisis communication?. *Corporate communications: An International Journal*. 15(4). 337-349. doi: 10.1108/13563281011085466.
7. Coombs. W.T. (2010). Crisis communication and its allied fields. In Coombs. W. T., & Holladay. S. J. (Eds.). *Handbooks in communication and media: The handbook of crisis communication* (pp. 54-64). United Kingdom: Blackwell Publishing.
8. Downey, S. D. (1993). The evolution of the rhetorical genre of Apologia. *Western Journal of Communication*, 57, 42-64.
9. Fauzi, A. (2017). "Kompas.com" Raih Penghargaan di Ajang "Wow Brand Award" 2017. Diperoleh dari: <http://bisniskeuangan.kompas.com/read/2017/03/09/173406526/.kompas.com.raih.penghargaan.di.ajang.wow.brand.award.2017>
10. Fearn-Banks. K. (2017). *Crisis communications: A casebook approach*. New York: Routledge.
11. Glantz, M. (2010). The Floyd Landis doping scandal: Implications for image repair discourse. *Public Relations Review*, 36, 157-163. doi:10.1016/j.pubrev.2009.09.002.
12. Harris S., Grainger, K. & Mullany, L. (2006). The pragmatics of political apologies. *Discourse and Society*, 17(6), 715-37. doi: 10.1177/0957926506068429

13. Hearit, K. M. (1992). *Organizations, Apologia, and crises of social legitimacy* (Doctor of Philosophy, Purdue University. Di akses di Proquest.
14. Hearit, K. M. (2005). *Apologia*. In Heath, R. L. (Ed.). *Encyclopedia of public relations*. California: Sage Publications, Inc.
15. Hearit, K. M. (2006). *Crisis management by apology: Corporate response to allegations of wrongdoing*. New Jersey: Lawrence Erlbaum Associates.
16. Hearit, K. M., & Brown, J. (2004). Merrill Lynch: Corporate Apologia and business fraud. *Public Relations Review*, 30, 459–466, doi: 10.1016/j.pubre.v.2004.08.008
17. Heath, R. L. (Ed.) (2013). *Encyclopedia of public relations* (Vols. 1-2). Thousand Oaks, CA: SAGE Publications Ltd. doi: 10.4135/9781452276236.
18. Heath, R. L., & O’Hair, H. D. (2009). *Handbook of Risk and Crisis Communication*. New York: Routledge.
19. Hoffmann. N. C., & Barnett. B. A. (2015). Apologia and rape: How the US military framed two cases of sexual assaults. *Media Report to Women*. 43(4). 6-23.
20. Ika, A. (2016). Kompas.com, Jadi "Top Brand" Kategori "Online News Platform" Pilihan Generasi Y. Diperoleh dari: <http://bisniskeuangan.kompas.com/read/2016/09/26/195450726/kompas.com.jadi.top.brand.kategori.online.news.platform.pilihan.generasi.y>
21. Kiambi, D. (2011). Ethnic appeal: A self-defense tool for kenyan politicians. *Public Relations Review*, 38, 144– 146. doi:10.1016/j.pubrev.2011.08.019
22. Kriyantono. R.. & McKenna. B. (2017). Developing a culturally-relevant public relations theory for Indonesia. *Malaysian Journal of Communication*. 33(1). 1-16.
23. Kriyantono, R., Destrity, N. A., Amrullah, A. A., & Rakhmawati, F. Y. (2017). Management of public relations for supporting the anti-corruption national program in Indonesia. *International Journal of Applied Business & Economic Research*, 15(20), 293-303.
24. Kriyantono, R. (2017). *Teori public relations barat & lokal: Aplikasi penelitian dan praktik*. Jakarta: Kencana.
25. Kriyantono, R. (2016). *PR writing: Teknik produksi media public relations dan publisitas korporat*. Jakarta: Kencana.
26. Kriyantono, R., Riani, Y. A., & Savitri, R. I. (2017). Public’s attribution vs punitive behavior in Indonesian public relations practice. *Jurnal Ilmu Komunikasi*, 14(1), 43-60.
28. Kriyantono, R. (2015). *Public relations & crisis management : Pendekatan critical public relations, etnografi kritis & kualitatif*. Jakarta: Kencana.
29. Kriyantono, R., Ramadlan, M. F., & Setiawan, A. (2015). Hidden advertising in local election era: Reducing the public’s right of information and critical power of media in Indonesia. *International Journal of Development Research*, 5(10), 5875-5880.
30. Kriyantono, R. (2012). Measuring A Company Reputation in A Crisis Situation: An Ethnography Approach on The Situational Crisis Communication Theory, *International Journal of Business and Social Science*, 3(9).
31. Lazare, A. (2004). *On apology*. New York: Oxford University Press.
32. Lehmborg. D.. & Hicks. J. (2018). A ‘glocalization’ approach to the internationalizing of crisis communication. *Business Horizons*. 61. 357-366.
33. Pratama, B.I., Kriyantono., & Susanti, F.N. (2017). Identifying local wisdom in elementary school anti-corruption education Malang. *RJOAS*, 8(68), 131-142.
34. Roberson. K. M., & Connaughton, S. L. (2010). On the presidential campaign trail: Apologia of association. *Public Relations Review*. 36. 181-183.
35. Seeger. M. & Sellnow. T. (2016). Apologia theory. In C. Carroll (Ed.). *The SAGE encyclopedia of corporate reputation* (Vol. 2. h. 39-40). Thousand Oaks.. CA: SAGE Publications Ltd. doi: 10.4135/9781483376493.n21.
36. Stewart, C. (2008). *Lessons learned: How jet jet blue airways used Apologia and new media to survive crisis-a case study* (Doctoral Thesis, School of Communication and the Arts Regent University).
37. Taneja. S.. Pryor. M.G.. Sewell. S.. & Recuero. A.M. (2014). Strategic crisis management: A basis for renewal and crisis prevention. *Journal of Management Policy and Practice*. 15(1). 78-85.

38. Tapsell, R. (2015). Platform convergence in Indonesia: Challenges and opportunities for media freedom. *Convergence: The International Journal of Research into New Media Technologies*, 21(2), 182–197.
39. Tollefson, M. M. (2000). "Anonymous" joe klein and newsweek: Individual and corporate Apologia. *Communication Quarterly*, 48(1), 58-64.
40. Toriana, L. (2017). Corruption Perception Index 2016: Terus Perkuat Integritas Sektor Publik, Dorong Integritas Bisnis Sektor Swasta. Diakses dari: www.ti.or.id/index.php/publication/2017/01/25/corruption-perceptions-index-2016
41. Ware, B. L., Linkugel, W. A. (1973). They spoke in defense of themselves: On the generic criticism of Apologia. *Quarterly Journal of Speech*, 59, 273-83.
42. Waymer, D., & Heath, R. L. (2007). Emergent agents: The forgotten publics in crisis communication and issues management research. *Journal of Applied Communication Research*, 35(1), 88-108
43. Weiner. B. (2006). *Social motivation, justice, and the moral emotions: An attributional approach*. New Jersey: Lawrence Erlbaum Associates. Inc.

FINANCIAL DISTRESS, MACROECONOMIC FACTORS AND ITS EFFECT TOWARDS STOCK PRICE IN MINING COMPANIES OPERATING IN THE COAL SUBSECTOR REGISTERED IN INDONESIA STOCK EXCHANGE FOR PERIOD OF 2013-2017

Mulyanti Siti Yanti*, Student
Anggraeni Lukytawati, Lecturer
 School of Business, IPB University, Indonesia

Sasongko Hendro, Lecturer
 School of Economics, University of Pakuan, Indonesia

*E-mail: sitiyanti75@gmail.com

ABSTRACT

Stock price is one of company performance indicators. There are many factors influencing the stock price, so this will be a concern for a company to focus and strive to maintain the stock price. The purpose of this study was to analyze the effect of financial distress, financial characteristics and macroeconomic on stock prices of coal company as listed on Indonesia Stock Exchange (IDX) during the period of 2013-2017. This paper uses panel data regression with fixed effect model. Eleven coal companies were selected as samples. The finding of the research showed that Z-score, financial characteristic, such as ROA and CFO which have positive and significant effect on stock prices, while macroeconomic variables such as interest rate, exchange rate and inflation have negative and significant effect on stock prices.

KEY WORDS

Financial distress, Z-Score, stock prices, panel data regression.

The fast growth of technology and global economy has insisted the business industry to keep up with its development. The fast growth and development have led to tougher competition in the market. The company needs to have high adaptability to compete in the domestic, regional, and international business industry. A company is expected to not only have high levels of adaptability, but it is also expected to maintain their own sustainability in the midst of constant change (Sinambela 2009). Any changes in the companies' performances would be reflected from their ability to accommodate and adapt to every change. For public companies, its performances would be reflected through their stock prices that have been registered in the stock exchange.

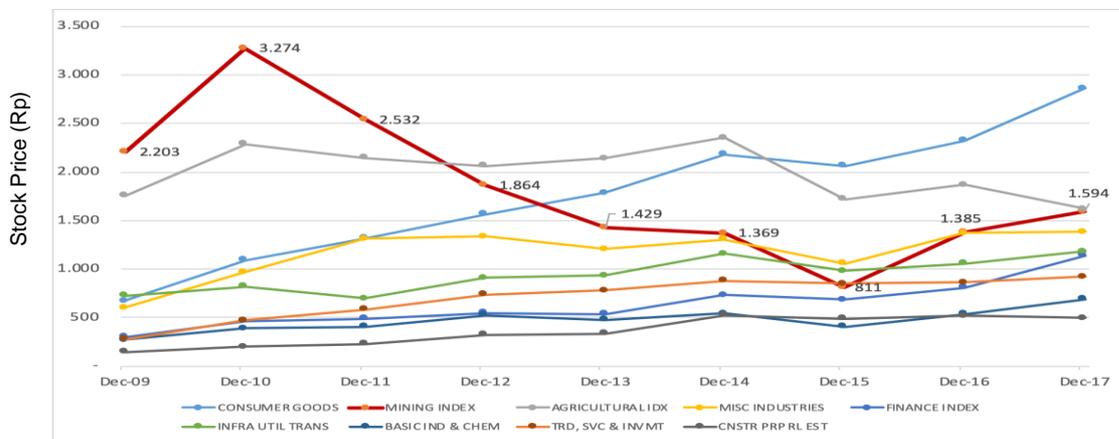


Figure 1 – Sectoral Stock Performances from 2007 until 2017 (Source: IDX, 2018)

In recent years, the mining sector has experienced one of the sharpest declines in stock price performance compared to other sectors, with an average decline of 23%. The downturn global economy and commodity prices that have not grown until 2017 are suspected to several reasons behind the decline of stock price performance within the mining sector (World Bank 2018). In addition, the mining sector has not seen any significant increase in the production, which can also led to the decline of stock price performance in the mining sector. Figure 1 shows stock performances of Stock Exchange by sector from 2007 until 2017.

One of the subsectors in a mining sector is the coal industry. Indonesia is one the largest coal producers and exporters in the world. Since 2005, Indonesia has become the leading exporter of thermal coal in the world, surpassing Australia. When the coal industry experienced a boom in 2000s, companies have gained significant amount of profit. Most of the profits gained were triggered by economic growth, especially economic growth in China and other developing countries that needed large amount of energy sources, in which led to an increase of coal commodity prices. Nevertheless, this favorable situation turned around during the global financial crisis in 2008, which led to the decrease of commodity prices, rise of interest rates, and weakens the currency exchange rate. Indonesia is inseperable from those external factors because commodity exports, especially coal and palm oil, contribute to nearly 50% of Indonesia's total export activity. In the second semester of 2009 until early 2011, global coal prices experienced a sharp rebound. Nonetheless, decline in global economic activity has also decreased the demand for coal, which once again caused a sharp decrease of coal prices in early 2011 until mid-2016 and also a decrease of stock performance (www.indonesia-investments.com).

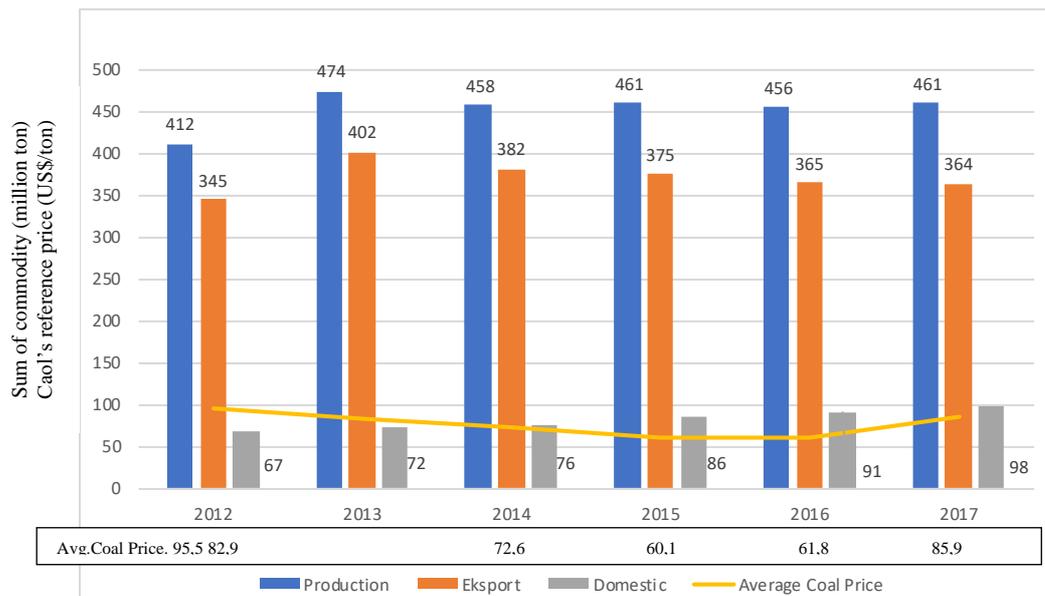


Figure 2 – Average of Production, Export, Domestic and HBA from 2012 until 2017 (Source: Indonesia Coal Mining Association (APBI) & Ministry of Energy and Mineral Resources)

Figure 2 shows the amount of coal production from 2012 until 2017; in which around 80% of it is a commodity export. The reference price for coal, referred as Harga Batubara Acuan (HBA), was declined in 2012 and also an increase in 2017. Furthermore, correction of HBA occurred in 2015, which caused numerous coal companies to experience net loss. According to Indonesia Banking Statistics, the banking's amount of credit and value of Non Performing Loan (NPL) towards the mining industry continues to increase from 2013 until 2017 (Table 1). In 2016 and 2017, the NPL ratio was 7.2% and 6.2% respectively. Those NPL values are above the 5% limit that has been set by Financial Services Authority (OJK). This illustrates that numerous companies within that particular sector were experienced difficulties in liquidity.

Table 1 – Banking's Credit and NPL towards the Mining Sector

Year	NPL Value (billion rupiah)	Credit (billion rupiah)	NPL Ratio(%)
2013	126.826	1.920	1,5%
2014	141.824	3.574	2,5%
2015	135.273	5.582	4,1%
2016	126.335	9.043	7,2%
2017	113.622	7.019	6,2%

Source: Indonesia Banking Statistics.

Avdalovic and Milencovic (2017) explained that stock prices could be influenced by financial performance, especially leverage and liquidity ratio in Beogard Stock Exchange. A decline in financial performance could initially indicate that companies in the mining industry are experiencing financial distress. Wahyuni et al. (2016), Lestari et al. (2016), Apergis et al. (2011) and Zhao (2015) studies described that financial distress could affect a mining company's stock price. If a company is experiencing financial distress and they could not handle those distresses properly, then it could lead to a disruption of business activities. Evidently, Ullah et al. (2017) illustrated that macroeconomic variables such as exchange rate, foreign currency reserve, and interest rate, are statistically significant in affecting stock market performance.

Various researches has discussed financial performance, internal and external factors, and its impact towards stock price, including companies that are experiencing financial distress with different results. Several researches have shown positive relationship between Earning per Share (Wahyuni et al. (2016) and (Perdana et al. (2013)), macroeconomic factors such as interest rate and exchange rate (Ullah et al. (2017) towards stock price. However, other studies have shown negative relationship between Earning per Share (Avdalovic&Milenkovic (2017)), macroeconomic factors such as interest rate and exchange rate (Artha et al. (2014) and Pardede et al. (2016)) towards stock price.

With discrepancies of results among previous studies, this paper would like to investigate further factors that might have an impact on stock price. Hence, this study will focus on analyzing variables such as financial characteristics, financial distress, macroeconomic factors, and its effect towards stock price of mining companies operating in the coal subsector. The purposes of this study are:

1. To analyze financial characteristics of mining companies operating in the coal subsector that are registered in Indonesia Stock Exchange (BEI) from 2013 until 2017;
2. To acknowledge and identify whether financial distress exists within mining companies operating in the coal subsector that are registered in Indonesia Stock Exchange (BEI) from 2013 until 2017;
3. To analyze the effects of financial characteristics, financial distress, and macroeconomic factors towards stock price of mining companies operating in the coal subsector that are registered in Indonesia Stock Exchange (BEI) from 2013 until 2017.

LITERATURE REVIEW

In most cases, a company's main purpose is to maximize profit and minimize their loss. Furthermore, a company's success is determined by its own performance. Hence, a company's performance can be evaluated by their financial and non-financial performance. For instance, financial performance can be measured by analyzing financial statements. Financial statements are one of the tangible forms that could indicate a company's performance, especially regarding the management of their finances. A financial statement serves as means of communication, a tool for the company to show their accountability towards stakeholders, an indicator of success, and also a crucial aspect in decision-making processes (Harahap 2007). Furthermore, financial performance of a company would also indicate the level of financial health that the company has. Fahmi (2011) explained that a

financial statement is used as information that could illustrate the company's current condition, in which it would correlate with their performances. Analysing financial statement can be done through comparing ratios. According to Fahmi (2011), financial ratios are divided into several categories such as liquidity ratios (i.e., Current Ratio (CR) and Quick Ratio), leverage ratios (i.e., Debt to Capital, Total Debt to Equity Ratio (DER), Total Debt to Total Assets Ratio), utilization turnover ratios (i.e., Receivable Turnover, Total Asset Turnover), probability ratios (i.e., Return on Assets (ROA) and Net Profit Margin), and growth ratios (i.e., Earning per Share (EPS) and Dividend per Share)

Financial distress can be described as a condition when a company is experiencing financial difficulties or crises which would be reflected in their inability to pay and distribute their obligation to the stakeholders. Sun et al. (2014) stated that financial distress can be defined as a condition where a company has financial struggles, such as being unable to pay off their debts, excessive account withdrawal, and bank deposit overdraft. Furthermore, from legal perspective, a financial distress is recognized when a company is declared bankrupt based on the national company law because they are not able to fulfill their obligation towards its debtors. Financial distress is classified into three categories, which are 'light', 'moderate', and 'bankrupt'.

The performance of Jakarta Composite Index (JCI) or more commonly known as Indeks Harga Saham Gabungan (IHSG), which has declined in recent years, could point out and indicate companies that are continuously experiencing financial distress could face bankruptcy in the long run. Bose (2006) explained that financial distress could be seen from the evaluation results of a company's stock price in the capital market. Davydenko and Franks (2008) and Djankov et al. (2008) have empirically established that the design of bankruptcy codes affects the bargaining power of creditors and debtors during difficult financial situations. Thus, return of the company's shares during difficult financial situations could be a very sensitive resolution towards the expected results. Consequently, any major changes in the bankruptcy code should be known and prioritized. Lin (2009) and Pindado et al. (2008) defined financial distress as a state in which a company has failed to fulfill its financial obligation and currently heading towards bankruptcy. In this study, financial distress would be used as a factor to avoid and predict when companies fail to fulfill its financial obligation and head towards bankruptcy.

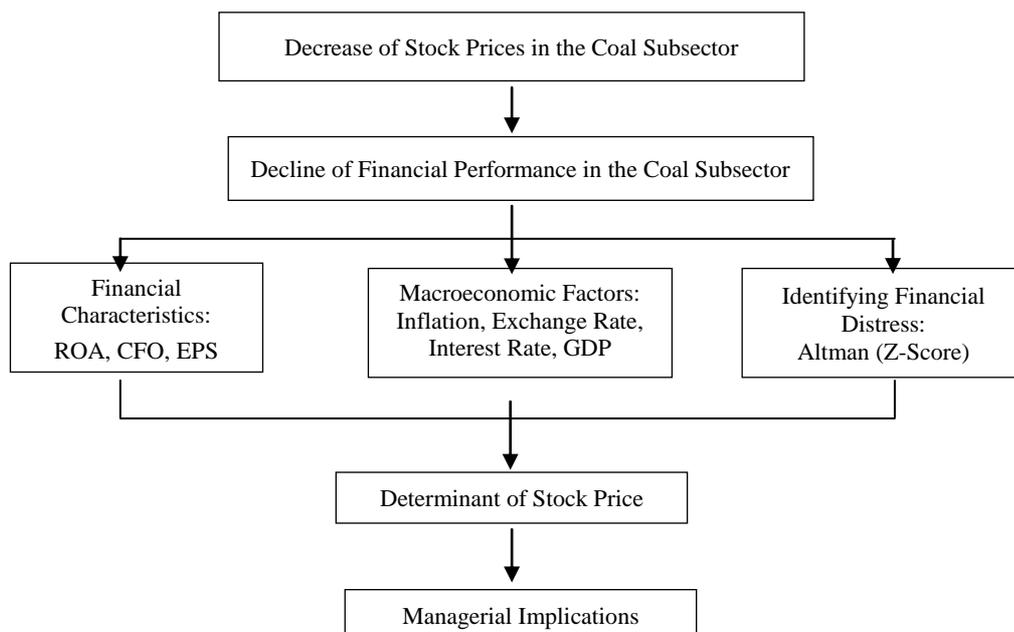


Figure 3 – The Conceptual Frame Work

A stock is considered as a sign of ownership towards a certain company (Mankiw 2006). Hence, stock price is value of a certain stock during a specific period, which is determined by market players. Stock price is also influenced by the stock's demand and offer within the market, in which a limited liability company would have to be registered in the stock exchange and would be held liable over its own stock. Furthermore, stock price is established from the interaction between the seller and the buyer of the certain stock, in hopes of gaining profit from the stock's company and representing the company's values. The company's stock is highly crucial, especially because it represent the attractiveness of the company to the investors. Brealy et al. (2007) demonstrated that the valuation of stock prices is divided into three groups, which are book value, liquidity value, and market value.

The aim of this study is to analyse the impact of global downturn to company's financial performance and stock price. In the initial phase, each selected company's financial characteristics and financial distress conditions will be described. Furthermore, additional information will be gathered to determine factors that could affect stock prices. After obtaining that information, this study would then compare several factors such as financial characteristics, financial distress, and stock price from 2013 until 2017. Figure 3 shows the conceptual framework used in this study.

METHODS OF RESEARCH

The data for the present study were drawn from mining companies operating in the coal subsector that are registered in BEI, fulfilling a certain criteria from 2013 until 2017. In addition, companies would also need to publish detailed financial statements each year from 2013 until 2017. Hence, the sample consisted of eleven companies, which are Adaro Energy (ADRO), Atlas Resources (ARII), Baramulti Susessarana (BSSR), Delta Dunia Makmur (DOID), Golden Energy Mines (GEMS), Harum Energy (HRUM), Resource Alam Indonesia (KKG), Samindo Resources (MYOH), Petrosea (PTRO), Golden Eagle Energy (SMMT), and Toba Bara Sejahtera (TOBA).

Data collected was analysed using descriptive and inferensia analysis. Financial distress was measured using Altman's Z-score model and panel data regression, which was run through using software Eviews 9. The panel data regression technique used in this study is the Fixed Effect Model, after using several approaches and test such as the Chow Test, Hausman Test, and the classic assumption test.

There are several stages of analysis to answer the problems in this study, which consists of:

Descriptive analysis to illustrate the financial characteristic with variables such as ROA, EPS, and CFO gathered from financial statements of selected mining companies operating in the coal subsector that are registered in BEI from 2013 until 2017.

Analysis to identify whether financial distress exists within a certain mining company operating in the coal subsector that is registered in BEI from 2013 until 2017. Financial distress is analysed using Altman's Z-score model, corresponding accordingly to Wahyuni et al. (2016) and Lestari et al. (2016) researches:

$$Z\text{-Score} = 6,56X_1 + 3,26X_2 + 6,72X_3 + 1,05X_4$$

Where: Z-Score is Bankruptcy Index, X1 is Working capital / total asset, X2 is Retained earning / total asset, X3 is Earning before interest and taxes/total asset, X4 is Book value of equity/book value of total debt.

Classification of financial distress condition: If $Z > 2.6$, it is considered within the "Safe Zone", if $1.1 < Z < 2.6$ it is considered within the "Grey Zone", and if $Z < 1.1$ it is considered within the "Distress Zone".

Analysis of the effects of financial performance, financial distress, and macroeconomic factors towards stock price of mining companies operating in the coal subsector that are registered in Indonesia Stock Exchange (BEI) from 2013 until 2017 to illustrate how the aforementioned variables correlate and affects stock prices. Hence, this study will use a

stock price factor model accordingly to Wahyuni et al. (2016) and Lestari et al. (2016) researches:

$$Y_{it} = \beta_0 + \beta_1 Z\text{-Score} + \beta_2 \text{ROA} + \beta_3 \text{EPS} + \beta_4 \text{CFO} + \beta_5 \text{IR} + \beta_6 \text{ER} + \beta_7 \text{INF} + \beta_8 \text{EG} + e_{it}$$

$$\beta_1, \beta_2, \beta_3, \beta_4, \beta_8 > 0 ; \beta_5, \beta_6, \beta_7 < 0$$

Where: Y is the stock price, i is the order of the companies observed, t is the period (timeline), β_0 is intercept (konstanta), β_1 - β_8 are regression coefficient, e is the error factor, Z-Score represent financial distress index, ROA is the ratio of net income by total assets, EPS is net income divided by available shares (US\$), CFO is the cash netto earned from the company's operational activities (US\$), IR is the interest rate (%), ER is the currency rate (Rp/1 US\$), INF is the level of inflation (%), and EG is Indonesia's economic growth (%).

RESULTS OF STUDY

Return on Asset (ROA) shows the company's ability in generating profit or net income over the total assets that the company has. The higher the ROA indicates that the company is able to generate higher levels of net income. Wahyuni (2016) explained that a positive value of ROA illustrates that a company is able to work efficiently; squeezing the most out of the limited resources available. Hence, the higher the ROA, the higher earnings the company would receive. On average, the highest ROA gathered from the sample comes from BSSR, with an ROA of 9,58%. However, the lowest value comes from ARII, with an ROA value of -3,30%. Other companies such as ADRO, ARII, DOID, GEMS, PTRO and SMMT sits below the average of ROA gathered from the sample. The lowest ROA occurred during 2013 until 2016. This aligns with the decline of net profit of the selected companies during that particular period, which was resulted from the downfall of HBA and global market demand. The highest ROA was obtained by BSSR through efforts of improving their performance by focusing on the Indian market to compensate the decline of demand in China. In addition, BSSR also cut some costs by shipping their own coal.

Earning per share (EPS) is the market value ratio that reflects a company's ability to generate net income for every each share available in the market. On average, the highest EPS gathered from the sample comes from ADRO with a value of US\$ 0,19 and the lowest value comes from ARII with a value of US\$ -0,02. Other companies such as ARII, BSSR, DOID, GEMS, HRUM, KKG, PTRO and SMMT are issuers that acquired the value of EPS below the average. ADRO's EPS value has set a high standard for other companies to attain, which is why other companies sits below the average.

Table 2 – Results of the descriptive analysis of Financial Characteristics Variables of mining company's operating in coal subsector condition that are registered in BEI from 2013 until 2017

NO.	EMITEN	ROA	EPS	CFO
1	ADRO	3,10	0,19	432,91
2	ARII	(3,30)	(0,02)	3,53
3	BSSR	9,58	0,01	23,24
5	DOID	0,91	(0,01)	97,79
6	GEMS	4,73	0,01	21,04
7	HRUM	3,73	0,01	29,50
9	KKGI	7,22	0,01	9,05
10	MYOH	8,01	0,02	20,58
12	PTRO	0,43	(0,00)	42,76
13	SMMT	(0,35)	(0,00)	(1,07)
14	TOBA	6,19	0,02	20,28
	Mean	3,66	0,02	63,60
	Standard Deviation	3,961503	0,056250	125,335721

The highest average CFO value was achieved by ADRO with a value of US\$432.91, whereas the lowest CFO value was attained by SMMT with a value of US\$-1.07. Low levels of CFO reflect the company's ability to invest in others and pay out dividends from their

operational activities. Oroud (2017) explained that CFO serves as a tool or medium to pay out dividends and capital expenditures. Almost all selected companies acquired a CFO value below the mean, due to the high levels of CFO levels set by ADRO.

Table 2 shows the results (value) of each financial performance variables using the descriptive analysis for each company by using the mean value from 2013 until 2017.

Financial distress is a condition where a company is experiencing financial difficulties or crisses, shown by its inability to pay and distribute their obligation to the stakeholders. Sun et al. (2014) stated that financial distress can be defined as a condition where a company has financial struggles, such as being unable to pay off their debts, excessive account withdrawal, and bank deposit overdraft.

Table 3 – Mean score of Z-Score and the mining company's operating in coal subsector condition that are registered in BEI from 2013 until 2017

NO.	EMITEN	Z-Score	Safe-Zone (kali)	Grey-Zone (kali)	Distress-Zone (kali)
1	ADRO	3,15	18	2	0
2	ARII	(2,83)	0	0	20
3	BSSR	2,89	10	5	5
5	DOID	1,62	0	16	4
6	GEMS	5,74	20	0	0
7	HRUM	11,89	20	0	0
9	KKGI	9,31	20	0	0
10	MYOH	5,28	20	0	0
12	PTRO	3,01	17	3	0
13	SMMT	2,82	6	4	10
14	TOBA	2,43	6	12	2
Mean		4,12			
Standard Deviation		3,925941			

Table 3 showed the descriptive analysis by showing the mean score and the financial condition using the Altman Z-score method from 2013 until 2017. Companies that fall within the Safe-Zone consist of ADRO, BSSR, GEMS, HRUM, KKGI, MYOH, PTRO and SMMT. Companies that falls into the Grey-Zone are DOID and TOBA. Furthermore, only one company that falls into the Distress Zone, which is ARII.

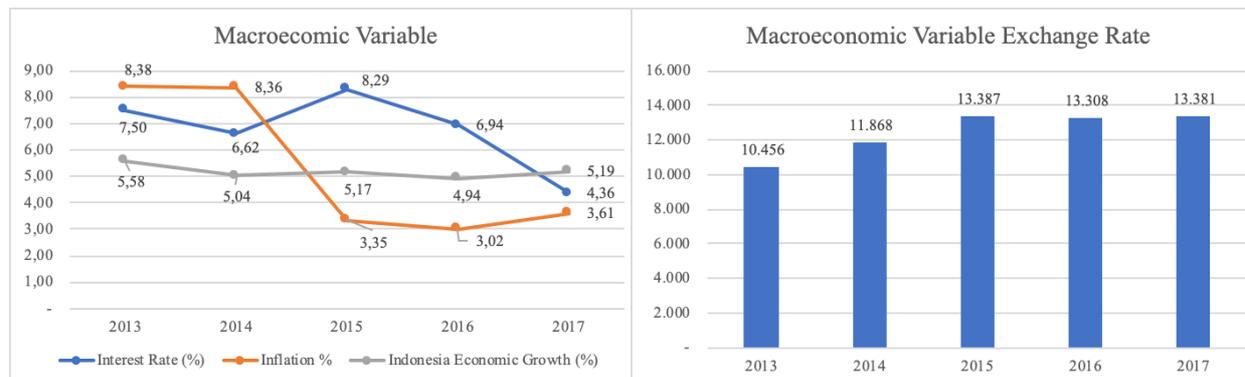


Figure 5 – Macroeconomic Factors from 2013 until 2017

From 2013 until 2017, almost all companies experienced fluctuation of Z-score value and falls in different zones. Companies that consistently stayed in the Safe-Zone are GEMS, HRUM, KKGI, and MYOH. Furthermore, ADRO have fallen into the Grey-Zone in quartal I and II of 2013, which was caused by low amount working capital during that period. On the other hand, ARII is the only company that consistently stayed within the Distress-Zone from 2013 until 2017, due to negative cumulative retained earning, and negative working capital. Other companies that have experienced both Grey-Zone and Distress-Zone are BSSR, DOID, SMMT dan TOBA. One of the main reasons behind companies falling into the Grey-Zone and Distress-Zone from 2013 until 2016 is due to the downturn of HBA that was caused by a global economic crisses and decreased the demand for coal.

The Safe-Zone condition shows that a company is able to pay their short and long-term debts, generate net profit, and have retained earnings even if the global economic condition is unstable. Results have shown that there are significant fluctuations of interest rate from 2014 until 2015. Nevertheless, Indonesia's economic growth (Gross Domestic Product Growth-EG) did not experience any significant fluctuations from 2013 until 2017. The exchange rate of foreign currency from IDR to US\$ weakened from 2013 until 2015. In 2016 until 2017, the exchange rate was still quite weak, although it did not experience any significant fluctuation. Figure 5 shows the fluctuation of Indonesia's macroeconomic factors.

Fixed Effect Model (FEM) selected as indicators of the best model, as it has been tested through a series choice of model and went through the classic assumption test, which is free from any violation of the assumption of normality, multicollinearity, heteroscedasticity, and autocorrelation. The R^2 value obtained was 96.54%, which indicates that 96.54% of heterogeneity in this study can be explained by factors that affects stock price within the model, whereas 4.46% can be explained by other factors outside of this model. The F-statistic of 277,75 with probability value of 0.000 indicates that there is at least one independent variable that has a linear relationship with stock price at the level of 5%.

Table 4 – The effect of Financial Distress, Financial Characteristics, and Macroeconomic Factor on Mining Companies operating in the Coal Subsector that are registered in BEI from 2013 until 2017

	Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	C	2.614244	0.624696	4.184827	0.0000
Financial Characteristics	ROA	0.011991***	0.001899	6.313604	0.0000
	EPS	-0.445744***	0.100428	-4.438452	0.0000
	CFO	0.000260***	6.93E-05	3.752188	0.0002
Financial Distress	ZSCORE	0.015920***	0.004280	3.719657	0.0003
Macroeconomic Factors	IR	-0.026950***	0.009922	-2.716115	0.0072
	INF	-0.048912***	0.008656	-5.650968	0.0000
	EG	-0.167424**	0.067701	-2.472988	0.0143
	ER	-0.093263***	0.020835	-4.476329	0.0000

Description: *** significant coefficient (α) = 1%, ** significant coefficient (α) = 5%.

Source: Data analysis using E-views 9.

Table 4 shows the results of panel data regression analysis, which shows variables of financial characteristics such as Return on Assets (ROA) and Cash from Operation (CFO) have a significant and positive relationship towards stock price. Nonetheless, other financial characteristics variable such as Earning per Share (EPS) has a significant and negative relationship towards stock price. In addition, Z-Score also has a significant and positive relationship towards stock price. Furthermore, other variables including Interest Rate (IR), Exchange Rate (ER), Inflasi (INF) and Economic Growth (EG) have a significant and negative relationship towards stock price.

Return on Asset (ROA) is a ratio that indicates how profitable a company is relative to its total assets. Hence, ROA is calculated by dividing a company's net income by total assets. ROA has been shown to have significant and positive correlation towards stock price. Coefficient size of 0.011991 indicates that an increase of ROA in 1% would also increase the stock price as much as 0.011991 (thousand US\$), ceteris paribus. High levels of ROA would indicate that the company is able to maximize their assets, which could increase the stock price and their attractiveness to investors. The results in this study align with previous literatures from Wahyuni et al. (2016) and Avdalovic and Milencovic (2017).

Cash from Operation (CFO) indicates the amount of money or profit a company brings in from the ongoing regular business activities that the company has, such as providing service or selling goods. CFO has been shown to have significant and positive correlation towards stock price. Coefficient size of 0,00026 indicates that an increase of CFO in 1 million US\$ would also increase the stock price as much as 0,00026 (thousand US\$), ceteris paribus. High levels of CFO would indicate that the company is able to pay out their dividends, pay debts, and invest more in other areas, which would affect the company's performance in the long run. Hence, high CFO would also increase the company's

attractiveness towards investors. This also aligns with previous research conducted by Oroud et al. (2017).

Earning per Share (EPS) is the company's ability to generate net profit for every outstanding share. The earnings per share value are calculated as the net income (also known as profits or earnings) divided by the available shares EPS. The EPS variable has been shown to have significant and negative correlation towards stock price. Coefficient size of -0.445744 means that an increase of EPS in 1 million US\$ would decrease the stock price as much as 0.445744 (thousand US\$), assuming *ceteris paribus*. The results in this study align with previous literatures from Avdalovic dan Milencovic (2017).

Z-Score is a combination from several financial ratios, such as Working Capital, Earning before Interest and Tax (EBIT), Retained Earning, and Bookvalue of Equity to Total Debt that are mentioned in a company's financial statements. Hence, this study has found that the Z-Score have a significant and positive correlation towards stock price. Coefficient size of 0.01592 indicates that an increase of Z-score would also increase the stock price around 0.01592 (thousand rupiah), *ceteris paribus*. The higher the Z-score a company has means that they have a healthy financial condition (i.e., within the Safe Zone). Thus, they are able to pay their short and long-term debts, generate net profit, and have retained earning, which could increase the stock price and their attractiveness to the investors. Wahyuni et al. (2016), Apergis et al. (2010), Lestari et al. (2016), and Zhao (2014) researches also showed similar results.

Interest Rate (IR) is one of the macroeconomic factors that was determined by the government to maintain a country's own economic sustainability. IR value that is used as a reference in Indonesia is the BI rate. However, starting from 19th August 2016, it has changed to BI 7-Day Reverse Repo Rate. Hence, table 21 showed that there is a significant and negative correlation between IR and stock price. Coefficient size of -0.02695 means that an increase of IR in 1% would decrease the stock prices as much as 0.02695 (thousand US\$), *ceteris paribus*. The higher the interest means that companies would need to pay more of their obligation using interest, which could decrease the net profit. This means that it may decrease the company's attractiveness to investors. This notion aligns with previous literatures of Artha et al. (2014).

Inflation (INF) is one of the macroeconomic factors that reflect how well the country's economic system and current conditions are. Inflation is interpreted as a price increase in general and continuously in a certain period of time (www.bi.go.id). The macroeconomic variable of INF, which revealed a significant and negative relationship towards stock price. Coefficient size of -0.0489 demonstrates an increase of INF 1%, which could decrease the stock price as much as 0.0489 (thousand US\$), *ceteris paribus*. When INF increase and becomes hard to control, then companies would experience an increase of operating costs, which could evidently decrease the company's net profit and lead to a decrease of stock price. This notion aligns with previous literatures of Al-Shubiri (2010) and Wahyuni et al. (2016).

Exchange Rate (ER) is a comparison between the values of one country's currency to another. Table 21 shows that ER has a significant and negative correlation with stock price. Coefficient size of -0.09326 means that there is an increase of ER as much as 1 thousand rupiah, which could decrease the stock price around 0.09326 (thousand US\$), *ceteris paribus*. The results align with Artha et al. (2014) and Pardede et al. (2017) research.

Economic Growth (EG) is a process of changing the financial condition of a country continuously towards better conditions for a certain period. Economic improvement can also be interpreted as a process of increasing production capacity produced in the form of increasing national income. The existence of economic growth is an indication of increasing economic development in people's lives. The macroeconomic variable of EG correlates significantly and negatively towards the stock price. EG coefficient of -0.1674 means that an increase in EG of 1% would decrease the stock price around 0.1674 (thousand US\$), *ceteris paribus*. Those results does not align with previous literatures that have been conducted by Raza et al. (2015) which described that EG has a significant and positive relationship. The discrepancies shown in various previous literatures are resulted from the characteristics of

the business in the research. The research subject is mining companies operating in the coal subsector, in which their main target is to operate in the international market (export). Export commodity has an average composition of above 80% compared to being used domestically, with China as their main destination. From 2013 until 2017, economic growth in Indonesia was considered relatively stable and did not experience any significant fluctuation. The average EG is 5,18%, with the highest EG of 5,19% that occurred in 2017. The lowest EG of 4,94% occurred in 2016. Contrary to the growth of the coal subsector, especially during 2013 until 2016, that declined drastically due to low demand in the international market, mainly from China. Low demands caused the downfall of HBA. Furthermore, the decline of financial performance (i.e., loss of profit) of mining companies operating in the coal subsector has also caused the stock prices of companies to weaken.

MANAGERIAL IMPLICATIONS

A company's management had done numerous efforts in order to maintain their financial performance, so that they could improve their stock price. This research has shown that financial characteristics, Z-score, and macroeconomic factor could affect a company's stock price. Thus, the managerial implication of this research is to focus on acknowledging whether the company has experienced a decline in financial performance and Z-score, which can lead to a decline of stock price.

When investor is planning to invest in a certain company, they would analyse the company's financial characteristics, financial distress, and macroeconomic factors as basic elements that needs to be considered. Internal factors such as ROA and CFO can be analysed directly from the company's financial statements. However, Z-score are not available in the financial statements, which mean that investors could calculate on their own. Furthermore, in-depth analysis of macroeconomic factors are adjusted to the company's characteristics such as whether they are a company that need large capital, or an exporting company that is affected by economies within the country of destination.

The government has an interest in determining each of its policies to become a stable and increasing national economic growth which in turn can prosper the people of Indonesia. For example, Ministry of Energy and Mineral Resources designed mining policies through the Mining Law. The policies issued are expected to be sustainable and provide a guarantee of the business continuity. Government policy will greatly affect the company in determining the business direction of the company such as export policies where the market composition of the market is mostly international (export) markets, smelter policies that require very large working capital and IUP (mining business permit) policy which will ultimately affect the company's financial performance. Bank of Indonesia (BI) is an institution implementing monetary policy in the State of Indonesia. BI is expected to be able to maintain the stability of the rupiah's value, both the stability of the prices of goods and services reflected in the development of inflation rates, the development of the rupiah exchange rate against other currencies, and the BI rate (interest rate) expected to influence market interest rates interbank money and longer term of interest rates. The last one is Financial Services Authority (OJK) is an institution that function to organize an integrated system of regulation and supervision of all activities in the financial services sector both in the banking sector, capital market, and non-bank financial services sectors such as Insurance, Pension Funds, Financing Institutions, and other Financial Services Institutions. Government's policy of providing guarantees and sustainability can improve company performance and stock prices. This can encourage more investment to come to this country.

CONCLUSION

Based on the results and analysis that have been conducted, ADRO and KKG I are considered to have one of the best financial performances for mining companies operating in the coal subsector that are registered in BEI. This was determined by analyzing ADRO and KKG I's positive ROA, EPS, and CFO during 2013 until 2017. In addition, this study has

acknowledged that mining companies operating in the coal subsector that are registered in BEI have gone through various financial distresses throughout 2013 until 2017. Companies that are consistently within the safe-zone are GEMS, HRUM, KKGI, and MYOH. On the other hand, ARII was the only company that consistently stayed within the distress-zone from 2013 until 2017. Financial characteristics such as ROA, CFO, and Z-score have a significant and positive correlation towards stock price. However, macroeconomic factors such as IR, ER, INF, and EG have a significant effect and correlates negatively towards stock price. EG, which has a negative effect, should be considered as the main object of concern due to its natural relationship with companies that export main commodities to the international market.

REFERENCES

1. Apergis N, Sorros J, Artikis P, Zisis V. 2011. Bankruptcy Probability and Stock Prices: The Effect of Altman Z-Score Information on Stock Prices Through Panel Data. *Journal of Modern Accounting and Auditing* 7 (7): 689-696.
2. Artha DR, Achسانی NA, Sasongko H. 2014. Analisis Fundamental, Teknikal Dan Makroekonomi Harga Saham Sektor Pertanian. *Jurnal Manajemen Dan Kewirausahaan*, 16 (2) : 175–184.
3. Avdalovic SM, Milenkovic I. 2017. Impact of company performances on the stock price: An empirical analysis on select companies in Serbia. *Economics of Agriculture* 2 (64):561-570.
4. Batubara [internet] [Diunduh pada 6 Pebruari 2019] tersedia pada <https://www.indonesia-investments.com/id/bisnis/komoditas/batu-bara/item236?>
5. [BI] Bank Indonesia. 2018. BI SSKl Eksternal [internet]. [Diunduh pada 5 Pebruari 2019]. Tersedia pada <http://www.bi.go.id/id/>.
6. [BPS] Badan Pusat Statistik. 2016. Laju pertumbuhan y on y produk domestik bruto menurut lapangan usaha (persen) 2014-2016 [internet]. [Diunduh pada 5 Pebruari 2019]. Tersedia pada <https://www.bps.go.id/dynamictable/>.
7. Lestari SD, Oktaniani RF, Arafah W. 2016. Financial distress prediction with altman z-score and effect on stock price: empirical study on companies subsectors chemical listed in Indonesia stock exchange Period 2009-2014. *International Journal of Business and Management Invention*. 5(8):30-39.
8. Oroud YS, M Islam A.Md, Tunku Salha T.A. 2017. The Effect of Cash Flows on the Share Price on Amman Stock Exchange. *American Based Research* 6 (7): 22-28.
9. Pardede N, Hidayat RR, Sulasmiyati. (2016). Pengaruh Harga Minyak Mentah Dunia, Inflasi, Suku Bunga (Central Bank Rate), dan Nilai Tukar (Kurs) terhadap Indeks Harga Saham Sektor Pertambangan di ASEAN (Studi pada Indonesia, Singapura, dan Thailand Periode Juli 2013-Desember 2015). *Jurnal Administrasi Bisnis (JAB)* 39 (1) 130-138.
10. Perdana R, Darminto, Sudjana Nengah. 2013. Pengaruh Return On Equity (ROE), Earning Per Share (EPS), Dan Debt Equity Ratio (DER) Terhadap Harga Saham (Studi Pada Perusahaan Makanan dan Minuman yang Go Public di Bursa Efek Indonesia Periode 2008-2011). *Jurnal Administrasi Bisnis (JAB)* 2 (1) Mei: 128-137.
11. Raza SA, Jawaid ST, Afshan S, Karim MZA. 2015. Is Stock Market Sensitive to Foreign Capital Inflows and Economic Growth? *Journal of Chinese Economic and Foreign Trade Studies*, 8 (3):142-164.
12. Sun J, Li H, Huang QH, He KY. 2014. Predicting financial distress and corporate failure: A review from the state-of-the-art definitions, modeling, sampling, and featuring approaches. *Knowledge-Based Systems*, 57: 41–56.
13. Wahyuni F, Anggraeni L, Irawan T. 2016. Financial distress and its impact on stock prices of mining sector firms in Indonesia stock exchange. *International Journal of Research in Commerce, IT, & Management* 6(12): 59-64.
14. Zhao T. 2015. The relationship between Z-Score and stock prices. [Paper] SSRN. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2595600.

DOI 10.18551/rjoas.2019-08.10

REFORMULATION OF BUSINESS STRATEGY TO INCREASE CREDIT GUARANTEE IN PT. JAMKRIDA BALI MANDARA

Putra I Ketut Indra Satya Dharma*, Setiawan Putu Yudi

Faculty of Economics and Business, University of Udayana, Bali, Indonesia

*E-mail: indraputra33@gmail.com

ABSTRACT

PT. Jamkrida Bali Mandara is a Credit Guarantee Institution in Bali, Indonesia. Reformulating business strategies is needed as a part of their strategies to win business competition and to achieve the goal of company. The objectives of this study are: identifying its internal strengths and weaknesses, as well as its external opportunities and threats; finding out the accurate business model and strategy of PT. Jamkrida Bali Mandara to grow and win the business. The analytical method used is descriptive qualitative analysis method, mapping current business models, SWOT analysis of current business models and designing new business model innovations. Data collection methods used is thorough interviews and observations by determining the population and a sample of 20 people. SWOT analysis with IFAS matrix shows result of 3.116 and EFAS matrix shows of 3.160 which are in Quadrant I in IE Matrix. So that market penetration and development and product development are strategies that must be done to increase credit guarantee. There are several policies in the future that need attention for the management of PT. Jamkrida Bali Mandara as follows: a) Market Development, b) Product Development, c) Automated business process using information and Technology, and d) Business Partner Development.

KEY WORDS

Business model, SWOT analysis, reformulation, business strategy.

The Credit Guarantee Institution has becoming more important in being part of Indonesian government policies to encourage the growth of entrepreneurship in the micro, small and medium enterprises (SMEs). Furthermore, PT. Jamkrida Bali Mandara has significant and important function in encouraging the growth of economic in Bali.

Hence, problems and issues of SMEs to acces financial institution are defined by two side of party: 1) Complement Management of Financial Institution, 2) Ability and visibility business of SMEs. In this condition, the important of fuction of PT. Jamkrida Bali Mandara--which is to connect both parties--will be more significant (Puspayoga, 2015). Credit guarantee Institution is solution to gain credit for SMEs expecially those with inadequate collaterral or even without collateral or track record to gain acces to credit, and complement the Goverments efforts promoting and developing business sector which are keys to spurring economy (Anwar, 2015).

The economics situation of Indonesia and Bali has stabilized but Bali has better situation than Indonesia. This situation stimulated the growth of volume of credit as the potential for business of PT. Jamkrida Bali Mandara.

Table 1 – Credit Composition According to its use based on Bank and Non-Bank Financial Institutions, 2011 – 2017 (Rp.miliar)

Type of Credit	Bank and Non Bank				Total
	BPD	BPR	Koperasi	LPD	
Productive Credit	33,003	30,051	18,921	15,105	97,080
Non-productive loans	51,728	18,000	22,170	35,248	127,146
Total Credit	84,731	48,051	41,091	50,353	224,226

Source: OJK Regional Office 8 Bali and Nusa Tenggara, Provincial Cooperative Office Bali and LPD LP (Data Processed).

Lowest achievement of credit guarantee that covered (risk of credit) by JBM only 2,6 % or IDR 5,7 billion from total volume credit distribution IDR 224,2 billion. Knowing the biggest potential size of credit which hasn't been covered by JBM, it's required to determine the causes. For achieving its goal to win the business, JBM must reformulate the right business strategy and restructure business model.

Business model described as how a company make an added value in job market, including combination of product, services, image, and distribution and human asset and infrastructure. Also, the concept business model is between between input that used by company for gain economy output (Afuah, 2004; Davenport et al. 2006; Osterwalder and Pigneur, 2004). Business model defined as architecture for product, services, people and regulation, financial benefit for people who were involved and the source of incomes (Timmers, 1998). The point of Business Model is a chain of company value (Porter, 1985). This model design for use as a tool for take advantage from oppurtunities (Makinen and Seppanen, 2007). Cavalcante et al. (2011) said; before doing analysis to modify business model in long term, it's needed to consider some persepective to business model, so that the modification process can turn out to be succesful. There are 4 types of modification: 1) Business Model Creation, creating new business model depending on company conditions 2) Business Model Extension, modifying the established business model 3) Business Model Revision, revising the business model that still working 4) Business Model Termination, threat business model by termin.

Persisting Problems:

- How do we identify strengths and weaknesses to anticipate oppurtunities and threats? Also how do we plan the strategy and business model formula for developing the company in the future in related to increase the market share of PT. Jamkrida Bali Mandara?

The goals of this study are to identify business model of Pt. Jamkrida Bali Mandara, SWOT analysis and innovation for designing new business model through comparison with business model based on SWOT Analysis. Business model used is based on Canvas Business Model which focused on the improvement of business model for increasing the performance of company and product. The framework of this research can be seen in Figure 1.

LITERATURE REVIEW

To understand the definition of business model, this study uses various terminology of business model issued by academics (Table 1).

The research of business model by Magfirah et al. (2012), Priandita and Toha (2013), Saksono (2013), Karsen (2013), and Danica (2012) explain; to design innovation of business model in the beginning needs to be analysed by establishing business model of the company. After understanding the scheme of business model or product, then SWOT analysis is conducted to find out the components of weakest and strongest element of the product or a company. After that, we can build the new business model. According to Fasha and Larso (2012), designing new business model in a company is needed to optimize the resources and to combine with opportunity to earn a good value proportion.

To create a Business Model Canvas as suggested, it is needed to identify the business policy strategies based on SWOT analysis. This analysis describes how the business strategy collaborated with internal factor such as strength and weakness and external variable including opportunities and threats as the impact of collaborated of strength (S) with opportunities (O), strength (S) with threats (T), weaknesses (W) with opportunities (O), and weaknesses (W) with threats (T). This model still related to nine elements that mention before.

This research used descriptive method with approach of Case Study and qualitative method. The data collected from 2018, composed by 2 kinds of data, Primary and Secondary. Primary Data consist of information, opinion, policies, judgment originated from internal management and partners of PT. Jamkrida Bali Mandara with sample population 20

respondents. The information collected related to problems company face, condition of human resources, daily operation and Oppurtunities and Threats PT. Jamkrida Bali Mandara. Secondary data collected through Literature Study related to condition of PT. Jamkrida Bali Mandara in general collected from document and internal report of PT. Jamkrida Bali Mandara.

Table 2 – Literature Review Analysis

Author	Definition Business Model Canvas
Giorgetti (1998)	Refence model as a basis for a new type of system that have some advantages rather than before.
Timmer (1998)	Architech of product, services and flow of information including description from various business people and their experiences, description of potential benefit fand resource of business incomes.
Tapscott et al. (2000)	Discussing business innovation model refer to (b-webs) to redesign new value preposition, transformation of competition regulations, mobilized people and other resources to increase performance.
Kraemer et al. (2000)	No specific definition terminology of business model but it is identified by 4 building block such a direct sales, direct customer relationships, customer segmentation for sales and service, build- to- order production.
Rappa (2000)	A method that used by company to run the business so the business can survive.
Christensen (2001)	As a source of competitive superiority of organization that it can be differrent company positioning even in the same type of business.
Al-Debei et al., 2008a; Amit and Zott, 2001; Casadesus-Masanell and Ricart, 2010; Osterwalder, 2004; Rajala and Westerlund, 2005; Tikkanen et al., 2005). Casadesus-Masanell and Ricart (2010) Zott et al. (2010)	Difference Concept: business model is direct result from strategy while the strategy its independence. As a tool to anticipate 3 phenomenons such as: 1) e-business and IT 2) strategic issue, create value, competitive superiority and company performance; 3) innovation and technology management
Osterwalder and Pigneur (2010)	Described as base of mindset on how the organisation creates, gives and designs the value.
Teece (2010)	Determine how the company give the added value, persuade customer to pay added value and change the payment becoming a benefit
Wheelen and Hunger (2010)	A method that used by company to earn the money in the business environment where the company located
Cavalcante, et al (2011)	Flexibility, but only for added or reduce without endangering or chaning the established process of the core business.
Bertels et al. (2015)	Divided by nine separated block that can give an integrated visual representation. The nine blocks related each other, also crelated to our definition of business model. The nine blocks are; Key Resources, Key Activity), Key Partner, Value Proposition, Cost Revenue, Customer Relationship, Customer Segmentation, Distribution Channel.
Dudin et al. (2015)	A modern tool for strategic management that can be used to optimise financial aspect from daily activity by economy entity

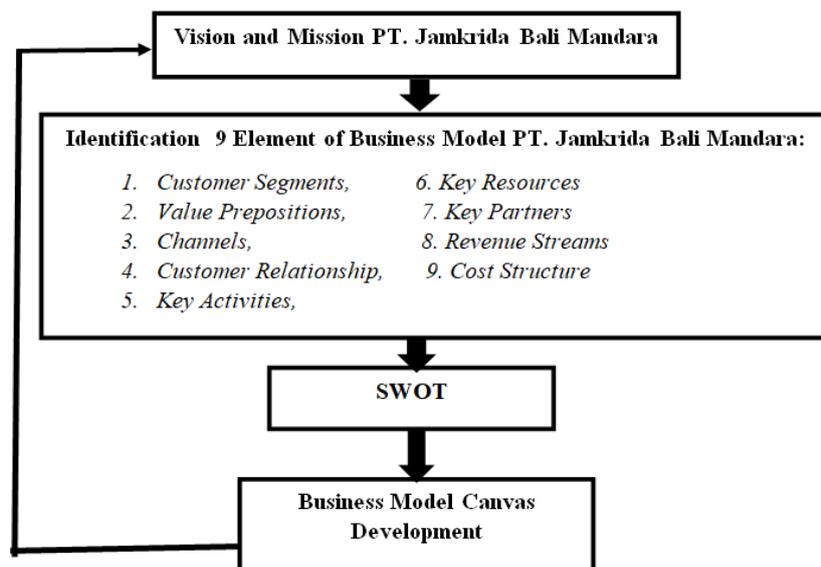


Figure 1 – Research Framework

METHODS OF RESEARCH

Descriptive Data is a statement from the respondents and their behavior that observed regarding to object of research, then it's analyzed with quantitative method, and the result is used to be a guideline to design the innovation business model based on business model that used it at the times. The guidelines Business Model is a Business canvas which originally declared by Osterwalder and Pigneur (2010). Business Model used as a structural based for a company to interaction with customers, partners and vendors (Zott and Amit, 2007). To design the innovation business model to encourage and increase credit guarantee, there are 3 steps of the method which are; (1) Vision and Mission Analysis, (2) Mapping hence business model (3) SWOT analysis to hence business model. (4) Designing New Business Model

On mapping business model at the times, first we need to define and fulfill customer segments. Element of customer segments defines various group of people or organization. This step is achieved to understanding customers' satisfaction and the services that is critical from this business model. Next step is fulfilling value propositions that are a benefit that offers to customer segmentations. After that, channels will describe how the company communicate to meet with customer needs to give a value propositions, distribution, and sales revenue. Customer relationships are the way to organize, interact, and build customer trust. If focusing customer segments do good value propositions will have good impact, also if channels and customer relationships build to be better, revenue streams will be earned from every transaction from customer. Internal element of company is a key resources, key activities, key partnerships which can keep a company to be more efficient. Efficiency is needed to control the cost structure.

RESULTS AND DISCUSSION

PT. Jamkrida Bali Mandara) is Indonesian state owned by government of Bali Province (BUMD), which specializing in Credit Guarantee for SMEs. On operating the business, the guidelines refer to Vision and Mission of Company. Vision of PT. Jamkrida Bali Mandara said to be; "Becoming a Credit Guarantee Company which is competitive, trusted and sustainable to support the growth of SMEs business sector, as apart of a government partner to encourage the growth of Balinese economy. Mission of PT. Jamkrida Bali Mandara are; a) Operate business of credit guarantee and management consultant for SMEs in order to strengthening SMEs, b) Increasing professionalism to operate a company becoming profitable and growth, and best services to customer, partners, public, and shareholders, c) Proactive to all kind of changes and accomodating with stakeholders.

First step of this research is analysis current business model in PT, jamkrida Bali Mandara, and then mapping to Business Model Canvas (BMC):

Customers Segment of PT. Jamkrida Bali Mandara (JBM) is a partners who have economic value or given critical contribution to Cash Inflow. There are 402 partners such as; Bank BPD Bali, Bank BPR Bali, LPD Bali, Kospin, Bumdes, Ventura Capital, Construction Entrepreneur.

Value Proposition described as combination between product and services of company to create a value for customers. The Core Business of JBM is guaranteeing a credit issued from partners to debitur. Guarantee of risk of credit and Coverage of unfullfill collateral of debitur. There are various type of credit guarantee product from JBM: a) Credit Guarantee such as: Multipurpose Credit Guarante, Construction and Credit Procurement, Credit Linkage, Credit for SMEs, b) Non-Credit Guarantee such as Surety Bond, Bid Bond, Performance Bond, Advance Payment Bond, Maintenance Bond and issuing Bank Guarantee/Contra Bank Guarantee; Contra Bank Guarantee Surety Bond, Bid Bond, Performance Bond, Advance Payment Bond, Maintenance Bond.

Customer Relationship is how the company build the relationship to target customers to provide better services. The former relationship transforms through a) Customer Gathering
b) Reciprocal Business.

Channel is a tool or media to communicate with customers to give added value for brand identity of company. For positioning brand and value of company JBM has channels as company commitments to grab and build the communication with customers such as online channels: website www.jamkridabali.co.id, **and offline channel:** Credit Guarantee Officer (CGO), this channels give a proper information and monitoring product and services regarding customer satisfaction

Revenue earned from every segment of customer and also described as how the company earn the income. Sources of incomes JBM: a) Fee from guarantee credit and non credit, b) Re-Insurance Commissions from Broker Agent and Re-Insurance from Sharing Risk, c) Interest of Deposito, Fee giro and Savings, d) Coupon Rate of obligation and mutual funds, e) Subrogated claim payment from JBM to partners, f) Others incomes, such as incidental incomes likes sponsorship fee.

Key Resources are assets or important source owned by company such as verified assets, infrastructure, money, people, and company culture/value or given by Key Partners. According to Osterwalder and Pigneur (2010), Resources might possible a company to make and offering value proposition, grab the market, maintain customer relationship, and earn revenue. Key resources can be different, depends on type of business model. There are 4 categories on key resources of JBM: a) Verified Asset, Building of office PT. Jamkrida Bali Mandara, b) Legal Formal, as a company stated owned by government, c) Human Resources, JBM team to operate daily business JBM divide by some department: 1) Department of Credit; Guarantee, Analysis, Administration, Claim and Subrogation, Risk Management and Credit Guarantee Officer, 2) Non Credit Department; Administration, Agent, 3) Department of Finance and Accountant, 4) Department Legal, 5) Department Human Resources, General Affairs and IT, 6) Department Financial, on this department. d) Financial, JBM depend on capital equity from shareholders. The volume of equity will impact its ability and capacity of guarantee (Gearing Ratio JBM is only 40 times of capital). From Capital of IDR 130 billion, JBM's ability to guarantee the credit is only IDR 5,2 billion. From capacity of JBM only 20 x productive business sector guarantee or IDR 2,6 billion and 20 x guarantee for non productive sector.

Key Activities Is the main activity that must be carried out by companies / business entities so that the business model can run well, among others, as follows: 1) Carrying out business activities through the provision of credit guarantee services by paying payments financially guaranteed to the guarantee recipient if guaranteed not to be able to fulfill their obligations based on the agreed agreement. 2) In addition to conducting business activities as mentioned above, the Company may conduct other business activities, namely: a) Guarantee loans channeled by cooperatives to its members; b) Guarantee the procurement of surety bonds; c) Conduct bank guarantee guarantees (counter bank guarantees); d) Assuring domestic documented letters of credit (SKBDN); e) Conducting custom bonds; f) Providing management consulting services related to guarantee business activities; g) Conduct other guarantees after obtaining Minister's approval.

Key Partnership Describes relationships with third parties / is a key partner / partner that is important so that the business model can run smoothly. 1) Strategic alliances between non-competitors are to conduct Co Guarantee with fellow Regional Credit Guarantee Companies in various Provinces in Indonesia, which aim to maximize credit guarantee capabilities. 2) Coopetition: strategic partnership between competitors is a collaboration carried out to do Sharing Risk with the Re Insurance mechanism.

Cost Structure is the composition of costs to operate an organization in realizing the value porous is given to customers. The cost structure is as follows: a) Expenses of Re Insurance; b) Guarantee Operating Expenses; c) Claim Reserves; d) Operational Expenses; e) HR Expenses; f) Office and General Administration Expenses; g) Depreciation Expenses.

Business Model Canvas is made before the SWOT Analysis conducted. It is a general description of hence company condition. The description shows on that model could be used to make a business policy or a new business strategy in the future. The Description that can get from that business model describe on 9 element model. Business Model Canvas PT. Jamkrida Bali Mandara before define SWOT strategy show as below:

Table 3 – SWOT Strategy

Key Partners	Key Activities	Value Proposition	Customer Relationships	Customer Segments
Co Guarantee Re Insurance	Credit Guarantee Services and others guarantee	Credit Guarantee Guarantee Non Credit	Customer Gathering Reciprocal Business	BPD Bali BPR LPD Koperasi Simpan Pinjam Bumdes LPDB Ventura Capital Conventional Banks
	Key Resources		Channels	
	Building, a state owned company on credit guarantee with a proper licence		Web Site, E-mail, Credit Guarantee Officer	
Cost Structure			Revenue Streams	
Cost Re Insurance, Guarantee Operation, Reverse Claim, Daily Operation, Human Resources, Admisitration office and General affairs and Depreciation.			Incomes Fee Guarante services, Fee Guarantee, Re Insurance Commissions, Interest deposito, fee giro and savings, Coupon Rate for obligation and others.	

To make a corporate strategy, we have to identify internal factor which is consist of strength and weakness through analyze using a IFAS and external variable; opportunity and treath with analyze using a matrices EFAS, to Business Model Canvas as below:

Table 4 – Business Model Canvas

Business Model Canvas at present
Offering
Value Proposition (VP) Credit Guarantee and Non Credit Guarantee
Customer
Customer Segments (CS) BPD,BPR,LPD, Koperasi, Bumdes, Venture Capital, LPDB
Channels (CH) Web Site, Email, CGO
Customer Relationship (CR) Customer Gathering and Reciprocal Business
Infrastructure
Key activities (KA) Fee Credit Gurantee and Others Gurantee
Key Resources (KR) BUMD, Capital, HR, Building
Key Partnership (KP) Reas, Broker
Finance
Revenue Stream (RS) IJP, Deposito, others incomes
Cost Structure (CSt) Operation, HR, General Affairs, Reserve Claim

Before using matrix IFAS and EFAS, identify strength, weakness, opputunity and threats from internal and external factors from the business model at the times as show in Table 5.

Based on Table 7, the total score of weighted score is 3.116. From the total weighted score, it can be concluded that the company is in a strong position. This is because the company's internal conditions are above the average value of 2.50. This condition shows that JBM internal factors are relatively strong in utilizing the strengths they have and are able to overcome weaknesses. The main strength possessed by JBM is the speed of payment of claims with a score of 0.271, and then the second power is occupied by payment of claims to banks and partners with a score of 0.268. Good relations with partners are in third place with a score of 0.257. Whereas more trust by banks and as BUMDs in the area of regional credit guarantee occupies the fourth and fifth positions with scores of 0.254 and 0.249 respectively. The main weakness possessed by JBM is the risk of claims that are fully borne by the company with a score of 0.104. In the second position is relatively limited capital with a score

of 0.108. In the third and fourth positions are IT systems that have not been integrated and the limitations of human resources who have knowledge in the field of credit guarantee with a score of 0.111 and 0.120 respectively.

Table 5 – Current Internal Strategy Factors against Business Canvas Models

No	Internal Strategy Factor	Business Model Canvas Saat Ini								
		VP	CS	CH	CR	KA	KR	KP	RS	CSt
Strenght (S)										
1	Speed of decision approval credit guarantee	VP								
2	Payment of Claim to The Bank	VP								
	And partner									
3	Good Relationship within partner				CR					
4	A state owned company						KR			
5	Trusted From Banks and Partners		CS							
6	Product of Guarantee to all risk	VP								
7	Holding Account IJP each partner				CR					
8	Placement Deposito each partner				CR					
9	Credit Guarantee Officer cover area Bali			CH						
10	Business coverage all area in Bali			CH						
Weakness (W)										
11	Talented Human Resources						KR			
	On Credit Guarantee business									
12	Limited Capital						KR			
13	Risk of Claim totally obligated by company							KP		
14	Limited personnel to cover area business						KR			
15	Unintegrated IT System within partnerts			CH						
16	Limited Marketing Communication for product and services of company		CS							

Table 6 – External Strategy Factor To Business Model Canvas at present times

No	External Strategy Factor	Business Model Canvas at present times								
		VP	CS	CH	CR	KA	KR	KP	RS	CSt
Opportunity (O)										
1	Increasing Finance Business of LKB and LKBB	VP								
2	Government Policy To SMEs	VP								
3	Total SMEs which is not using the JBM services		CS							
4	Condition of Banking Business		CS							
5	Segment market still open widely		CS							
6	Application of Credit Guarantee Regulations						KR			
7	Opportunity to collaborate with Fintech business based on P2P		CS							
8	Opportunity to Publish a Surety Bond					KA				
9	Limited Number of Guarantee Credit Company in Bali					KA				
Treatth (T)										
10	Competition with others company who running same business					KA				
11	Highest Tariff of Reward Guarantee								RS	
12	Ability to pay risk of Credit/ Claim									CSt
13	Moral Hazard Risks							KP		
14	Missunderstanding about fuction of Insurance and Credit Guarantee					KA				
15	Some Government regulation still not support this business						KR			

Based on the data, the total weighted score is 3.160. This shows that JBM is able to respond to external factors by utilizing existing opportunities to overcome threats. From the total value it can be concluded that the company is in a strong position in facing opportunities and overcoming threats with a weighted total score higher than the average value of 2.50. The main opportunity faced by JBM is the plan to increase the financing of Bank Financial Institutions and Non-Bank Financial Institutions with a score of 0.305. In the second position is the development of banking conditions with a score of 0.301. The large number of UKMK while there are still many who have not been guaranteed to occupy the third position with a score of 0.297, while in the fourth position was occupied by government policy support for UKMK with a score of 0.293.

Table 7 – Internal Factor with Matrik IFAS

No	Internal Strategy Factor	Quality	Rating	Amount	Comment
		a	b	a x b	
Strenght (S)					
1	Speed of approval decision credit guarantee	0.070	4	0.271	Improve
2	Payment claim to banking and Partners	0.071	4	0.268	Improve
3	Relationship to partners	0.069	4	0.257	Improve
4	A states owned company	0.072	3	0.249	Keep up
5	Trusted from partners and public	0.070	4	0.254	Improve
6	Product Guarantee for All Risk	0.066	3	0.198	Developed
7	Holding Account IJP at partners	0.057	3	0.145	Keep up
8	Placement Deposito at Partners	0.072	3	0.235	Keep up
9	Credit Guarantee Officer cover all area	0.063	3	0.199	Adding Personnel
10	Business area covered Bali	0.070	3	0.229	Developed
Weakness (W)					
11	Talented Human Resources	0.053	2	0.120	Improve the ability
12	Limited Capital	0.051	2	0.108	Adding
13	Claim risk obligated of company	0.043	2	0.104	Risk Mitigation
14	Limited personnel to cover Bali area	0.058	3	0.159	Add Personnel
15	Unintegrated IT System within partnerts	0.051	2	0.111	Developot the System
16	Limited Marketing Communication for product and services of company	0.062	3	0.209	Social media champaign

Table 8 – External Factor with Matrik IFAS

No	External Strategy Factors	Quality	Rating	Amount	Comment
		a	b	a x b	
Opportunity (O)					
1	Increasing Finance business to LKB and LKBB	0.0791	4	0.305	Product Development
2	Government policy to SMEs	0.0791	4	0.293	Markom to SMEs
3	Total SMEs which is not using JBM services.	0.0791	4	0.297	Markom to SMEs
4	The condition of Banking business	0.0791	4	0.301	Product Development
5	Market still open widely	0.0791	3	0.206	Market Penetration
6	Aplication of Regulation for Credit Guarantee company	0.0732	3	0.245	Government regulation
7	Opportunity to collaborated with Fintech based on P2P	0.0663	3	0.169	Sytem Online
8	Opportunity to publish a Surety Bond	0.0732	3	0.194	Markom of product
9	Limited number of company credit guarantee	0.0732	2	0.165	Market Penetration
Treath (T)					
10	Competition with other company who run same business	0.0514	3	0.136	Internal Consolidation
11	Highest Tariff of Reward Guarantee	0.0564	3	0.149	Evaluation
12	Ability to pay risk of claim/credit	0.0544	3	0.152	Risk Mitigation
13	Risk of moral hazard	0.0366	2	0.070	Risk Mitigation
14	Missunderstanding of fuction Insurance and Credit Guarantee	0.0584	4	0.233	Markom Product and Services
15	Some Government regulation not support this business	0.0613	4	0.245	Government Regulation

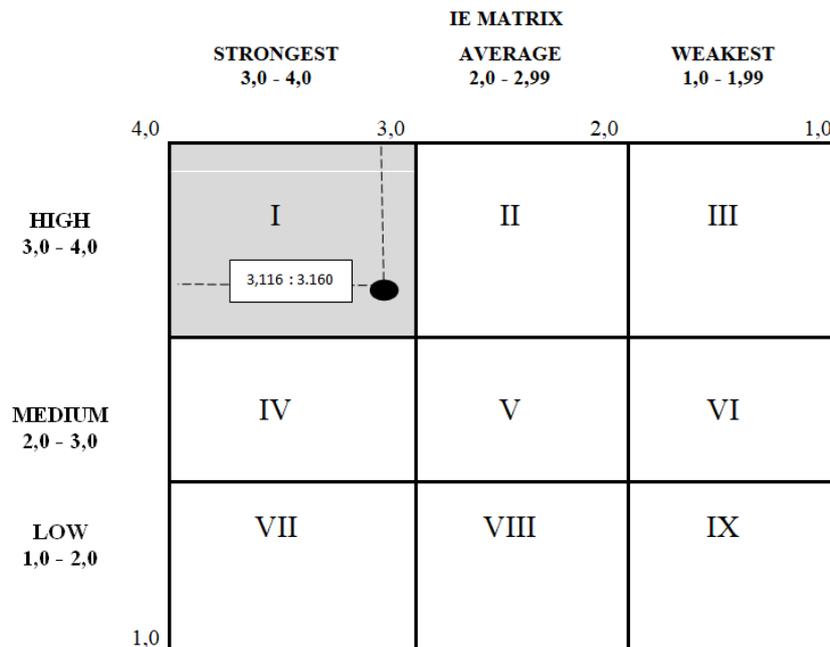


Figure 2 – Matrix IE (Source: Rangkuti, 2001)

The main threat faced by JBM is the risk of the emergence of moral hazard with a score of 0.070. Competition arising from similar companies is in second place with a score of 0.136. Whereas for the third and fourth position, the Guaranteed Service Fee rate is relatively high and the ability to pay credit risk / claims with a score of 0.149 and 0.152 respectively.

From the calculation of EFAS and IFAS Matrix the position of JBM is in cell I, including grow and build. The strategy that fits this area is an intensive strategy, such as market penetration, market development or product development to achieve growth, whether in sales, assets or profits, or a combination of the three. This can be achieved by reducing prices, developing new products, increasing the quality of products or services, or increasing access to a wider market. The business that can be done is by minimizing costs (minimizing costs) so that it can increase profits. This method is the most important strategy if the condition of the company is in rapid growth and there is a tendency of competitors to carry out price wars in an effort to increase market share. Thus, companies that have not reached critical mass (profit from large-scale production) will experience defeat, unless the company can focus on certain profitable markets.

Table 9 – Matrix Internal and External

n/n	Strenght (S)	Weakness (W)
IFAS	Speed of approval decision Payment claim to Banking and Partner Relationship to Partner A state owned company	Talented Human Resources on Guarantee business Limited Capital Risk of Claim Amount of Personnel to cover area
EFAS	Trusted from Partner and Public Product Guarantee for All Risk Placement Deposito on all partner Holding Account for IJP on all partner Credit Guarantee Officer covering area Bali Business coverage Bali area	Unitegrated IT System within partner Markom for product and services
Opportunity (O)	Strategy SO	Strategy WO
Financing Bank and Non Bank increase Support Regulation from Government Big Size Market SMEs still not grab Condition of banking Business Market segment of BPR, LPD, Koperasi still widely open Opportunity collaborated with Fintech Opportunity to publish Surety Bond Limited company of guarantee credit in Bali	a. Market Penetration Strategy (S1, S2, S3, S5, S6, O1, O2, O3, O5, O9) b. Market Development (S1, S2, S3, S4, S5, S6, S9, S10, O1, O2, O3, O5, O6, O7) c. Product Development (S1, S2, S3, S4, S5, S6, S7, S8, O1, O3, O5, O7, O8)	a. Improving ability and add personnel CGO (W1,W2,O1,O3,O5) b. Increasing Capital (W2, W3, W4, W5, O1, O3, O5, O7, O8) c. Integrated IT System, launch Mobile Application (W4, W5, O1, O5, O7, O8, O9)
Threat (T)	Strategy ST	Strategy WT
Competition within other company with similar business The relatively high rate of guarantee service returns Ability to pay risk/credit Moral hazard risks Missunderstanding Fuction of Insurance and Credit Guarantee Unintegrated regulation from government	a. Internal consolidation and Improvement b. Risk-based for Tariff Evaluation (S1, S3, S5, S6, T1, T2) c. Risk Mitigation (S1, S2, S3, S6, T1, T3, T4, T6) d. Differencial (S4, S5, S10, T2, T3, T4)	a. Product Inovation (W6, T1, T4, T6) b. Social Media champaign (W1, W3, W4, T1, T3, T4, T5)

JBM has to focus on products of Credit Guarantee. This strategy shown on Speed of approval decision (S1), Payment Claim (S2), Relationship with Partner (S3), Trusted (S5), Product of Guarantee (S6) related to Increasing Condition Financing (O1), Government Regulation (O2), Total amount of SMEs (O3), Widely Market (O5), Limited Competitor (O9). The Goal of Market Penetration: 1) Maintaining and increasing market share through Product Combination with competitive IJP, 2) Structuring market with right calculation to avoid competitor influences, 3) Increasing benefit Guarantee Credit to partner and customer.

JBM strategy to developing the potential through team unit to increasing benefit for customer and partner and prospectus customer and partner. Using Strenght point (S1,S2,S3,S4,S5,S6,S9,S10), JBM has to get potential market according to biggest amount of SMEs which is not using credit guarantee, with support by (O1,O2,O3,O5,O6,O7). Key of

Success by adding personnel of Credit Guarantee Officer (S9) in every market segment such as BPR, LPD, Koperasi Simpan Pinjam, Bumdes and Fintech.

Product Development; JBM has to create various products but related to Government regulation (Financial Services Authority Regulation: POJK No 6/POJK.05/2014 about operating business credit guarantee).

Strategy S – T, the result is internal consolidation to all resources of company through: a) automate procedure and activity with IT development, b) Improving skill and ability personnel through coaching and training, c) Increasing relationship and appreciation to partner through visiting, gathering, discussing, seminar, etc

Evaluation Tariff IJP based on Risk; The goals are increasing quality of services to SMEs to easily access get the credit guarantee services of JBM (S1, S3, S5, S6). With do this evaluation, in order to increasing volume of credit guarantee from SMEs UMKM (T1, T2). This way has to do soon regarding the competitor act the same strategy.

Continuing Action Plan from JBM to reduce impact of potential losses the business (S1, S2, S3, S6, S7). Such as: 1) Avoid; Terminated Program or Activity, 2) Reduce; Anticipating action, example likes create new SOP (Standard Operation Procedure) on Analyze Credit Guarantee, Claim, Risk Management, 3) Share; A solution with move the risk to other party, example likes collaborated with Broker Agent, Re Insurance/ Co Guarantee, 4) Accept; A solution with make a Reserve Losses or Claim (T3, T4, T6) and make a Disaster Recovery Plan, because sometimes the risk could not avoid but could anticipated

JBM do differentiation to achieve a unique product that can not copy by competitor and give a add value to customer, partner and public (S4, S5, S10). The product has to competitive rather than others (T2, T3, T4).

Clear job description will make employee focus on their job and responsibility (W1, W2,). In the future need to development the organization structure through make a working section likes: 1) Credit Guarantee Department, 2) Non Credit Guarantee Department, 3) Claim and Subrogasi Department, 4) Risk Management Department and 5) Investment Department. Increasing number of CGO in every segment will make a impact to quality of services and grab the bigger market (O1, O3, O5).

Gearing Ratio depend on capital of JBM (W2, W3, W4, W5), the bigger capital, the bigger ability to guarantee. (O1, O3, O5, O7, O8). From total capital IDR 130 Millions, JBM has capacity to guaranteed IDR 5,2 Triliuns. Hence, until 2017, Total Credit that JBM did the guaranteed: IDR 5,7 Triliun.

Integrated System and Mobile Application; Integrated system will make work easier and reduce the times, easy to reporting, monitoring and evaluation because can provide proper data (W4, W5). The goal also to give fast and proper information to reduce the times of operation, procedure and services to customer and partner (O1, O5, O7, O8, O9).

Activity to makes a product one step ahead from competitor and customer needs.(W6). JBM has a Guarantee of Custom Bond for SMEs especially on export import Furthermore; JBM could make a Guarantee for Letter of Credit. This product has to approve by government. By developing the product, JBM could anticipating the competition with others company in the future times (T1, T4, T6). Innovation is very important to do by JBM in order to: 1) Innovation as a improvement of product, 2) Innovation for increasing total omzet, 3) Innovation as a quality of company performances, 4) Innovation for compete with competitor.

Create new innovation to accommodate the need of SMEs and deliver the benefit and advantages of the product by using social media such as Facebook, Instagram, Youtube, also give a training to personnel about IT and Social media to make their updating with IT and aware with change of business condition, market conditions(W1, W3, W4, W5). Human resources development also has to improve by recruit potential personnel and upgrade ability the staff and leader to anticipating the fast of changing in this business (T1, T3, T4, T5).

Based on the corporate strategy and alternative strategy mapping above, then the description of the elements that make up each element in the 9 (nine) elements of the Canvas Business Model at PT. Jamkrida Bali Mandara for the long term in the future is described as follows:

Customer Segments, customer segmentation is designed to increase customer value or profitability through careful customer targeting. (Chan, 2005; Chung et al., 2004; Hwang et al., 2004; Jones et al., 2006; Kim and Street, 2004; Kim et al., 2005; Kuo et al., 2006; Shin and Sohn, 2004; Woo et al., 2005). Based on the results of the SWOT analysis, elements in the segment of JBM customer segments undergo segment changes such as a). Financing Agency, b) Mortgage, c) Fintech Company, d) Company or Institution channeling Partnership and Community Development Program (PKBL). Besides the development of a new segment, JBM will also increase the number of partners.

The process of creating value involves suppliers to create superior value propositions, customers determine the goods or services needed. A superior value proposition must produce greater opportunities to create results for benefits or values received by suppliers by means of income, profits and references. Because of successfully managing the creation and exchange of values, companies can try to maximize the value given continuously to the desired customer segment (Payne and Frow, 2005). JBM Core Business in the field of credit guarantee will still maintain the guarantee products that have been running so far. Value Proposition elements will add several products and services to partners and service users, including the following: a) Conduct credit guarantees and / or partnership program loans channeled by state-owned enterprises in the framework of the Partnership and Community Development Program (PKBL); b) Guarantee the distribution of loan money guaranteed by pawn and fiduciary; c) Guarantee on debt securities; d) Guarantee on commercial transactions; e) Guarantee the letter of credit (L / C); f) Providing management consulting services related to guarantee business activities; g) Providing information / databases Guaranteed related to guarantee business activities; and / or h) Conduct other guarantees after obtaining approval from the Minister.

Customer Relationship (how to maintain good relationships with consumers), Rönroos (1994) defines customer relationships as an organizational effort directed at building, maintaining and developing relationships with customers and other partners, relationships that can be divided into two parts: to attract customers and build relationship with customers, so that business goals are achieved. Based on the results of the SWOT analysis, customer relationships elements have added elements of the "Customer Forum and Marketing Summit". This element is a tool that will be used to build communication and relationships with customers. Institutional customer forums are institutions or forums formed by customers facilitated by PT. Jamkrada Bali Mandara. While the Marketing Summit will be routinely held to be able to provide information about market share from partners while providing rewards or awards for partners who contribute the most performance to JBM. This activity can be integrated with the Economic Outlook for partners to be able to know the economic situation in a macro and micro way. The Customer Relationship element will change to: a) Customer Gathering; b) Reciprocal Business; c) Customer Forum; d) Marketing Summit.

Channels (media used to reach customers), From a marketing perspective, using different channels will provide different types of services and the output will vary. Internet channels are very strong in providing information to customers, thereby reducing costs incurred. Offering multiple complementary channels provides a greater and deeper combination of services to customers, thereby increasing the overall value proposition from the seller (Wallace et al., 2004). Channel preferences vary among customers. But even individual customers are increasingly becoming multi-channel buyers, preferring different channels at different times and at different stages of the shopping process (Nunes and Cespedes, 2003). From the perspective of operations management, multi-distribution can produce synergies that help reduce costs for meeting needs (de Koster, 2002, Lummus and Vokurka, 2002). Thus, companies need to make trade-offs when deciding which processes are integrated across all channels and which processes should be separated (Gulati and Garino, 2000). Based on the results of the SWOT analysis, elements of the channels did not change from the previous one. These elements include: website, e-mail, and Credit Guarantee Officer (CGO). But what has increased is that the amount of CGO will be added according to the increasing number of partners. To support the plan to increase the number

of CGOs, JBM will develop an integrated system between JBM-Broad-Partner Partners as potential customers of Bank and Non-Bank Financial Institutions.

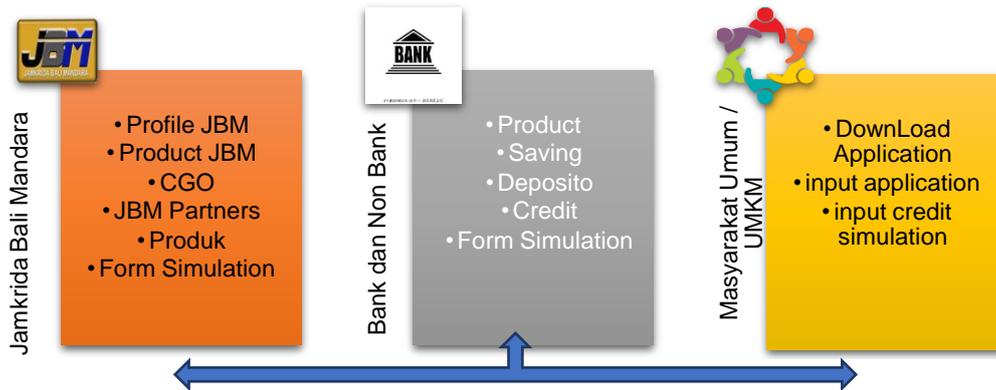


Figure 3 – Integrated system between JBM-Broad-Partner Partners

Table 10 – Business Models

Business Model Canvas 2018	Business Model Canvas n the Future
OFFERING	
Value Proposition (VP)	
Credit Guaraantee: Micro, Multiuse	Credit Guarantee: PKBL, Pawn/ Fiducia, Letter of Debt,
Construction and procurement, Linkage,	Letter of Credit, Consultant, Database and Information
Non credit: Surety Bond, Counter	Guarantee Non Credit: warehousing
Bank Guarantee (KBG), Custom Bond	
CUSTOMER	
Customer Segments (CS)	
BPD (51 Kantor Cabang),BPR (90 BPR), 177 LPD, 65 KSP, 16 BUMDES, 1 Bank Umum, 1 Modal Ventura and Gapensi	BPD Bali, 47 BPR, 1256 LPD, 1179 KSP, 318 Bumdes, Financial Institution, Fintech, Pawn and PKBL
Channels (CH)	
Web Site, Email, CGO	website, e-mail, Credit Guarantee Officer (CGO) and Integrated System
Customer Relationship (CR)	
CuCustomer Gathering Reciprocal Business	Customer Gathering, Reciprocal Business, Customer Forum, Marketing Summit
INFRASTRUCTURE	
Key activities (KA)	
Credit guarantee services and other guarantee	Credit Guarantee and other Guarantee
Key Resources (KR)	
BUMD, Capital, HR, Building	Capital Additions, HR Development
Key Partnership (KP)	
Re Insurance, Broker Agent	Co Guarantee and Re Guarantee
FINANCE	
Revenue Stream (RS)	
IJP sources from Product Credit Guaranteedari Product	IJP sources from Credit Guarantee and Non
Deposito, Coupon Rate, others income	Credit, Deposito, Re Insurance Commissions, other income
Cost Structure (CSt)	
Operation ,HR, General, Claim Reserve, Re Asuransi	Decrease of Claim Reserve because sharing risk with other (Broker Agent)

Revenue Stream (source of income), Integration of business models involves combining customer models, value models, and revenue models. Because each different type of customer model (segmentation) can support various models of customer income and value, it is possible to develop several streams in each of these models - we call them

"business model integration" (Novak and Hoffman, 2001). Revenue Stream is cash flow obtained by the company from each customer segment. Revenue Stream describes how companies get money.

SWOT Analysis Key Resources has not changed, but the most important point made by JBM is to approach all Shareholders in order to increase capital participation to JBM which aims to increase capacity to guarantee capacity (Gearing Ratio) so that it is expected to fulfill what will be offered in the Value Proposition. The potential for additional partners is still very possible, but if the guarantee capacity is still limited, it will be very difficult for future development plans to be achieved.

Based on SWOT Analysis, adding activity of company as mention below: 1) Giving Credit Guarantee to cover the risk of payment of guarantee recipients if recipient could not fulfill its obligation. 2) Beside of that activity, JBM could do other activity to create varioust product but related to Government regulation (Financial Services Authority Regulation: POJK No 6/POJK.05/2014 about operating business credit guarantee).

Willis and Huston (1990) emphasize how importance of business relationship is as important as marriage, trusted and openness information between each party are mainly based of good relationship. Landry et al., (1998) seen that succesfull relationship from cost of transactions and relationship is about comtroll cost of transactions. Key Partnership based on SWOT Analysis is Amount of partner need to add in order to increasing services and capacity of JBM. The important things are about how the performances of JBM could Share the Risk and increasing services to partner in term of their scheme.

Based on SWOT Analysis, there is no changing on cost structure but it will be useful on the future regarding decrease of claim obligate because JBM do Risk Mitigation through collaborated with Re Insurance / Re Guarantee, Broker Agent based on agreement to share the risk.

RESEARCH IMPLICATIONS

Based on the results of research on reformulating business strategies to increase credit guarantee at PT. Jamkrida Bali Mandara by using SWOT Analysis and the Business Model Canvas approach can make an alternative in preparing a business strategy for the company, as well as this research as an enrichment theory and can be used as a reference for future researchers.

The contribution of the results of this study can be used as a reference for PT. Jamkrida Bali Mandara to make good improvements internally, so that by implementing a new Business Model, it can improve company performance. There are several future policies that need attention for the management of PT. Jamkrida Bali Mandara as follows: a. Focus on developing market potential, b. Do product development, c. Immediately develop in the field of Information Technology so that the development goals can be achieved, among others; Cross Selling Products, Education to End Users, increase Value, create cost efficiency and can improve financial performance, and d. Collaborating with the Agency Company to be able to increase the number of Credit Guarantee Officers according to the target partners.

From the results of this study obtained several things that can be used as material for consideration for Provincial and District and City Governments to further increase their participation in the development of PT. Jamkrida Bali Mandara. The things that can make the attention of the Regional Government are as follows: a. MSMEs as a driver of the regional economy, b. Government policy in developing MSMEs through People's Business Credit, c. The Role of Regional Financial Institutions that play a role in developing MSMEs through Micro Credit and Regional KUR, d. There are still many MSMEs that are Feasible but not Bankable which must be more developed in access to finance., e. The role of MSMEs engaged in the creative economy needs to get policy support from the Regional Government, f. Growing Entrepreneurship Start Up, g. Adding Equity Participation to PT. Jamkrida Bali Mandara, so that in the future PT. Jamkrida Bali Mandara can be more important to open access to finance through micro credit guarantee.

LIMITATIONS OF RESEARCH

Resercher has realize the limitations of this research such as small population sample, writting technique, analysis, etc; but hoping this research could be useful as a references for people who involved on SMEs, Credit Guarantee, Government Policies, Financial Instituitian, NGO and Academic Institutions. Because the limitations of this research, the next research on the same issue or object suggest to concern on: more sample to get objective result, similar object research, and other methods of research.

CONCLUSION AND SUGGESTIONS

Strenght: approval speed on Credit Guarantee, Payment for Claim to Banking, Good business relationship to partner, Trusted from partner. Weakness: Claim Risk lay on their own obligations, Limited Capital to guarantee potential size market of credit in Bali, Unintegrated system in running the business, Ability of personnel to running operation related to skills on credit guarantee. Opportunity: Growth of Credit in Bali, Banking Business Condition, Big Number of polupation SMEs not reach to acces Credit Guarantee, Government policies to encourage SMEs. Threats: Moral Hazard Risk, Competition with other Guarante Credit Company, Highest Tariff Fee Gurantee.

Strategy and Model Business for future plan for JBM:

- Customer Segment; Collaboration with new partners;
- Value Proposition; Offering new product to anticipating the competation and and fulfill the demands such as: Guarantee for LC, Pawn, Letter of Trade, Consultant Management, IT and database, etc;
- Customer Relationship; to reach, maintains and increasing relationship to customer, JBM do some activity such as: Customer Forum, Marketing Summit, Customer Gathering and Reciprocal Business;
- Channels; JBM using establish channel and develop the integrated system among the each channel (JBM, - Partner – Public as prospectus customer);
- Revenue Streams; JBM developing other incomes sources as impact of adding value proportion, such as: Incomes from Credit Guarantee government, LC., LD, Pawn, Consultant, Database and IT;
- Key Resources; JBM has to approach share holders to adding capital for increasing ability to guarantee, because of big potential market size and volume of credit guarantee in Bali;
- Key Activities; JBM could develop and expand the business as long follow government regulation Undang Undang No 1 Tahun 2016 about Credit Guarantee Company;
- Key Partnership; JBM partners and collaborated with Broker Agent and Re Insurance to sharing risk;
- Cost Structure; JBM did mitigation risk through collaborate with Broker Agent and Re Insurance to sharing risk based on mutual agreement.

Suggestions:

- Based on core company business to cover the risk, JBM has to do Risk Mitigation to reduce the risk so JBM could growth continously and maintain performances abilty and capacity to guarantee;
- It is important to focus on core business on Credit Guarantee, maintain the achievement and maintain the trusted from partner, customer and public. Some issues has to concern: a) Trusted on payment claim, b) Speed of services bring the good images of company, c) Capital Power Reputation;
- Using and developing integrated IT system to reduce cost and times to achieve best services;

- Struggle with former VISION and MISION to accommodate goals of JBM and shareholder to encourage SMEs in Bali in order to growth economy in Bali and Indonesia.

REFERENCES

1. Angipora, M. P. 2002. *Dasar-dasar Pemasaran*. PT. Raja Grafindo Persada, Jakarta.
2. Afuah – Tucci, 2003. *Internet Business Models and Strategic Text and Cases*. The McGraw-Hill Companies.
3. Afuah A. 2004. *Business Models, A Strategic Management Approach*. New York: McGrawHill
4. Christensen CM. 2001. The past and future of competitive advantage. *MIT Sloan Management Review* 42:105–109.
5. Christoph Zott and Raphael Amit. 2009. *Business Model Design: An Activity System Perspective*. Long Run Planning (LRP), <http://www.elsevier.com/locate/lrp>.
6. Christoph Zott, Raphael Amit, Lorenzo Massa, 2010 IESE Business School, *the Business Model: Theoretical Roots, Recent Development, and Future Research*.
7. Cavalcante Sergio, Peter Kesting and John Ulhoi, 2011, *Business Model Dynamic and Innovation: (re) establishing the Missing Linkages*, Emerald insight journal.
8. Chesbrough H. 2007. Why companies should have open business models. *MIT Sloan Management Review* 48(2):8-22.
9. Chesbrough Henry, 2009. *Business Model Innovation: Opportunities and Barriers*, Long Range Planning, Elsevier.
10. Chan, Chu-Chai Henry (2005). Online auction customer segmentation using a neural network model. *International Journal of Applied Science and Engineering*, 3(2), 101–109.
11. Chung, Kyoo Yup, Oh, Seok Youn, Kim, Seong Seop, and Han, Seung Youb (2004). Three representative market segmentation methodologies for hotel guest room customers. *Tourism Management*, 25, 429–441
12. Duncan, R.B. (1972). *Characteristics of Organizational Environments and Perceived Environmental Uncertainty*. *Administrative Science Quarterly*, Vol.17.
13. David, Fred R. 2006. *Strategic Management: Concepts and Cases*. 10th Edition. (Manajemen Strategis: Konsep-Konsep and Kasus). Edisi Bahasa Indonesia. Jakarta: Salemba Empat.
14. Davenport Thomas H, 2006. *Competing on Analytics*, Harvard Business Review.
15. Danica D. 2012. *Business Model Innovation at PT. Bahma Rotan to Improve its Competitiveness in Europe Final Project [undergraduate thesis]*. Bandung: Sekolah Bisnis Manajemen, Institut Teknologi Bandung.
16. de Koster MBM. 2002a. The logistics behind the enter click. In: A Klose, LN Van Wassenhove (Eds), *Quantitative Approaches to Distribution Logistics and Supply Chain Management*. Springer: Berlin; 2002. p. 131-148.
17. de Koster MBM. 2002b. Distribution structures for food home shopping. *International Journal of Physical Distribution and Logistics Management* 32(5): 362-380.
18. Fasha CI, Larso D. 2012. Business model design for new business development at PTB Dialysis Clinic Chain. *The Indonesian Journal of Business Administration* 1(7):492-499.
19. Fitzroy, P., and Hulbert, J. (2005). *Strategic Management: Creating Value in Turbulent Times*. John Wiley.
20. Heidi M. Bertels, Peter A. Koen, and Ian Elsum. 2015. *Business Models outside the Core Research-Technology Management*.
21. Handoko, Hani. 2003. *Manajemen Edisi 2*. Yogyakarta: anggota IKAPI.
22. Hwang, Hyunseok, Jung, Taesoo, and Suh, Euiho (2004). An LTV model and customer segmentation based on customer value: A case study on the wireless telecommunication industry. *Expert Systems with Applications*, 26, 181–188.

23. Gambardella A., McGahan A.M. 2010. Business-model innovation: General purpose technologies and their implications for industry structure. *Long Range Planning Journal* 43(2/3):262-271.
24. Giesen E, Riddleberger E, Christner R, Bell R. 2010. When and how to innovate your business model. *Strategy and Leadership* 38(4):17-26.
25. Grönroos, Christian. (1994). From Marketing Mix to Relationship Marketing: Towards a Paradigm Shift in Marketing. *Management Decision*, Vol. 32, No. 2, pp. 4-20
26. Gulati R, Garino J. 2000. Get the right mix of bricks and clicks. *Harvard Business Review* 78(3): 107-114
27. Jaka Lindic and Carlos Marques da Silva. 2011. Value proposition as a catalyst for a customer focused innovation. *Emerald Journal*, Faculty of Economics, University of Ljubljana, Slovenia.
28. Jones, Joni L., Easley, Robert F., and Koehler, Gary J. (2006). Market segmentation within consolidated E-markets: A generalized combinatorial auction approach. *Journal of Management Information Systems*, 23(1), 161–182.
29. Kenneth L. Kraemer et al. (2000). *Refining and Extending the Business Model with Information Technology: Dell Computer Corporation*
30. Kotler and Keller. 2009. *Manajemen Pemasaran, Edisi Ketiga Belas Jilid I*. Jakarta: Erlangga.
31. Kotler and Armstrong. 2006. *Prinsip-prinsip Pemasaran jilid 1 edisi 12*. Jakarta Erlangga
32. Kotler, P. 1997. *Manajemen Pemasaran (Terjemahan)*. PT. Gramedia, Jakarta.
33. Kotler, P 2000. *Manajemen Pemasaran (Terjemahan Jilid 2)*. PT. Prenhallindo, Jakarta.
34. Kotler, P 2002. *Manajemen Pemasaran (Terjemahan)*. PT. Prenhallindo, Jakarta.
35. Kartajaya, Hermawan 1999, *Siasat Bisnis: Menang and Bertahan pada Abad Asia Pasifik (Business Strategy: Winning and Sustaining in Asia Pacific)*, diterbitkan oleh PT Gramedia Pustaka Utama in cooperation with Majalah Berita Mingguan Gatra, Jakarta,
36. Kamuriwo DS. 2009. Timing in business model and product market strategy tradeoffs: Performance implications. *Academy of Management Proceedings*:1-6.
37. Kim, Yong Seog, Street, W. Nick, Russell, Gary J., and Menczer, Filippo (2005). Customer Targeting: A Neural Network Approach Guided by Genetic Algorithms. *Management Science*, 51(2), 264–276.
38. Kuo, R. J., An, Y. L., Wang, H. S., and Chung, W. J. (2006). Integration of self-organizing feature maps neural network and genetic K-means algorithm for market segmentation. *Expert Systems with Applications*, 30, 313–324.
39. Lummus RR, Vokurka RJ. 2002. Making the right e-fulfillment decision. *Production and Inventory Management Journal* 43(1/2): 50-55
40. Landry, Sylvain, Trudel, Yves, and O'Diorio, Mattio: Just-in-Time Supply: Cooperation, Competition, and Abuse. *Competitiveness Review* 8(1), 37–45 (1998).
41. Lovelock, C. 1999. *Manajemen Pemasaran Jasa (Edisi Bahasa Indonesia)*. PT. INDEKS Kelompok Gramedia, Jakarta.
42. Lestari, Endah Prapti. 2011. *Pemasaran Strategik: Bagaimana Meraih Keunggulan Kompetitif Edisi Pertama*. Yogyakarta: Graha Ilmu
43. Mikhail Nikolaevich Dudin, Georgiy Nikolaevich Kutsuri, Irina Jur'evna Fedorova, Svetlana Sozrykoevna Dzusova and Anzhela Zafitovna Namitulina. 2015, the Innovative Business Model Canvas in the System of Effective Budgeting. *Asian Social Science*; Vol. 11, No. 7; 2015 ISSN 1911-2017 E-ISSN 1911-2025 Published by Canadian Center of Science and Education
44. Makinen Saku and Seppanen Marko, 2007. Assessing Business Model Concepts with Taxonomical Research Criteria, *Emerald Insight Journal*
45. Margaretta, J. 2002. Why Business Models Matter. *Harvard Business Review*, 80, 5, 65-92.
46. Maghfirah, Alamanda DT, Prasetyo A, Prabowo F, Ramdhani A. 2012. E-Business analysis of Garut University (UNIGA) using the business model canvas. *International Journal of Science and Research* 3(6):529-534.
47. Teguh, 2014, *Metode Kuantitatif untuk Analisa Ekonomi and Bisnis*, Rajawali Pers.

48. Nunes PF, Cespedes FV. 2003. The customer has escaped. *Harvard Business Review* 81(11): 96-105
49. Novak Thomas P and Donna L. Hoffman 2001, Profitability on the Web: Business Models and Revenue Streams Article · January 2001
50. Osterwalder Alexander and Yves Pigneur. 2003. An Ontology for E-Business Models, University of Lausanne.
51. Porter, M. 1993. Strategi Bersaing: Teknik Menganalisis industri and Pesaing (Terjemahan). Erlangga, Jakarta.
52. Payne, Andrian F 1993. The Essence of Services Marketing: Pemasaran Jasa (Terjemahan). Penerbit Andi, Yogyakarta.
53. Payne Andrian F and Kaj Storbacka and Pennie Frow Managing the co-creation of value, Article in *Journal of the Academy of Marketing Science* · March 2007, ResearchGate.
54. Payne, A., and Frow, P. (2005). A strategic framework for customer relationship management. *Journal of Marketing*, 69, 167–176.
55. Puspayoga Anak Agung Ngurah, 2015. Industri Penjaminan. Menatap Indonesia Gemilang, Diding S Anwar and Toto Pranoto, Lembaga Manajemen FEB UI.
56. Priandita A., 2013. Business strategy formulation using business model case study: PT. Kartina Tri Satria. *The Indonesian Journal of Business Administration* 2(1):68-75.
57. Pearce II, Jhon A. and Robinson Jr, Richard B. (2013). Manajemen Strategis: Formulasi, Implementasi, and Pengendalian, Buku 1, Edisi 12. Jakarta. Salemba Empat.
58. Saksono GA. 2013. Kanvas Model Bisnis PT. Fuel Technologies Group Indonesia [tesis]. Bogor: Sekolah Pascasarjana, Institut Pertanian Bogor.
59. Shin, H. W., and Sohn, S. Y. (2004). Segmentation of stock trading customers according to potential value. *Expert Systems with Applications*, 27, 27–33.
60. Rappa Michael. 2006. Business Models on The Web, <http://digitalenterprise.org>.
61. Rangkuti, Freddy. 1999. Analisis SWOT Teknik Membedah Kasus Bisnis, PT. Gramedia Pustaka Utama, Jakarta.
62. Rangkuti, Freddy. 2006. Analisis SWOT Teknik Membedah Kasus Bisnis, PT. Gramedia Pustaka Utama, Jakarta.
63. Seddon, P.B., Lewis, G.P., 2003. Strategy and Business Models: What's the Difference. In 7th Pacific Asia Conference on Information Systems, 10–13 July 2003, Adelaide, South Australia.
64. Sukmadinata, N.S. 2011. Metode Penelitian Pendidikan, Cetakan ke Tujuh, Remaja Rosdakarya. Bandung.
65. Sugiyono, 2000. Statistik untuk Penelitian, Alfabeta, Bandung.
66. Sugiyono, (2008). Metode Penelitian Kuantitatif Kualitatif and RandD. Bandung: Alfabeta.
67. Sugiyono, 2011. Metode Penelitian Kuantitatif Kualitatif and RND. Bandung: Alfabeta.
68. Timmers, P. (1998) 'Business Models for Electronic Commerce', *EM –Electronic Markets* 8(2), pp. 3–8,
69. Teece, D. (2010), "Business models, business strategy and innovation", *Long Range Planning*, Vol. 43 Nos 2/3, pp. 172-194. Emerald Publishing.
70. Umar, H. 2005. Strategic Management In Action. PT. Gramedia Pustaka Utama, Jakarta.
71. Wolcott RC, Lippitz MJ. 2007. The four models of corporate entrepreneurship. *MIT Sloan Management Review* 49(1):75-82.
72. Woo, Ji Young, Bae, Sung Min, and Park, Sang Chan (2005). Visualization method for customer targeting using customer map. *Expert Systems with Applications*, 28, 763–772.
73. Willis, T.H. Vender Requirements and Evaluation in a Just-In-Time Environment. *International Journal of Operations and Production Management* 10(4), 41–50 (1990).
74. Williams, Chuck, 2001. Manajemen, Buku 1, Edisi Pertama, Alih Bahasa Sabarudin Napitupulu, Salemba Empat, Jakarta.
75. Wibisono, Dermawan, 2006. Maajemen Kinerja. Jakarta: Erlangga.
76. Zott C, Amit R. 2007. Business model design and the performance of entrepreneurial firms. *Organization Science Journal*, 18 (2): 181-199.

DOI 10.18551/rjoas.2019-08.11

SETTLEMENT OF THE COMMUNITY'S RESIDENTIAL LAND CONFLICTS

Nafisah Laila*, Muhsin Ahmad

Faculty of Industrial Engineering, Universitas Pembangunan Nasional, Indonesia

Siswanti Yuni

Faculty of Economy, Universitas Pembangunan Nasional "Veteran" Yogyakarta, Indonesia

*E-mail: ahmad.muhsin@upnyk.ac.id

ORCID: 0000-0003-2457-268x

ABSTRACT

A total of 37 families affected by the earthquake on 27 May 2016 inhabit an area that is the former Winongo Station in Glondong Tirtonirmolo Hamlet, Kasihan, Bantul, Yogyakarta. The great earthquake had devastated houses and claimed 5000 lives. Then, some of those losing their homes inhabit the land owned by the Yogyakarta Palace. Unfortunately, years afterwards, problems arise as to their future destiny. They are anxious and worried if one day the Palace demands that they abandon the land as they do not know where to move. On top of that, there are these individuals persons claiming themselves as descendants of the King of Yogyakarta and legitimate owners of the land, and persuading the community to pay a sum of money to get permits, who were later revealed to be a fraud. Based on those problems, this research aims to seek certainty as to the status of residential land and answer to the community's problems on how to obtain a permit from the Palace of Yogyakarta. In Yogyakarta, land issues are unique issues because they involve many parties in charge of land management and administration, namely the Regional Government; the national land agency, BPN; and Palace of Yogyakarta. Complexity of the problems facing citizens may potentially results in conflicts, making it necessary to take into account perspectives of various parties. This research used the SWOT analysis to determine the position, weaknesses, strengths, and opportunities that are expected to contribute to conflict settlement. Findings of this research indicate that in order to obtain permission to occupy Sultan Ground, residents must submit an application to the Palace of Yogyakarta's Panitikismo section (the section in charge of land affairs) with the regional government's prior approval enclosed with their identity and a letter of recommendation issued by the Village, Sub-district, and BPN. Afterwards, *Surat Kekancingan* will be issued once the documents submitted are deemed meeting the prescribed requirements, followed by a survey. This *Surat Kekancingan* constitutes permission to use Sultan Ground. It is then re-registered with BPN. As a great number of residents inhabit this area, it requires teamwork or a community-based scheme in order to carry out the whole process and maintain security chaired by the Hamlet administrator or board.

KEY WORDS

Surat Kekancingan, Sultan Ground, community, public service.

The Netherlands used to invade Indonesia and in 1755 both countries entered into the Gianti treaty, which concerns the handover of Mataram Kingdom's land to Prince Mangkubumi, marking the establishment of the Province of Yogyakarta. Later, this land is known as Sultan Ground. During the Dutch colonization, the population was comprised of three groups, they were the European people, foreign Eastern people, and indigenous people. Customary law applied to indigenous people while western law applied to the European people and foreign Eastern people. As Mataram Kingdom's land lain in the territory of the indigenous people, it was managed according to the customary law.

In 1945 Indonesia gain its independence and the Province of the Special Region of Yogyakarta was later established in accordance with the Law Number 3 of 1950 and granted

autonomy, which includes land management. The Law Number 13 of 2012 concerning the Privileges of the Special Region of Yogyakarta sets out special features, i.e. the authority to govern itself, culture, spatial planning, and land affairs. People exploiting its land are required to have a permit in the form of *Surat Kekancingan* issued by the Palace of Yogyakarta's Panitikismo.

The earthquake that hit Bantul District, Yogyakarta on 27 May 2006 had completely destroyed houses and public facilities, causing more than 5,000 fatalities and many losing their relatives and families. After the earthquake, many people whose houses were devastated finally looked for vacant land to occupy and built a temporary shelter. Most of them occupied the land owned by the Palace, known as Sultan Ground, including the land occupied by 37 heads of families along a former railway line in Glondong Tirtonirmolo Hamlet, Kasihan, Bantul, Yogyakarta. They live and open a business here. Most of them are underprivileged and registered in the poverty alleviation program as recipient of the program called PKH (which stands for *Program Keluarga Harapan* or Dream Family Program).

They feel anxious and worried about their future destiny if one day they are about to abandon the land they are currently inhabiting. They do realize that they have no official permission to live there, not to mention those individuals claiming themselves as royal families and owners of the land demanding that they pay a sum of money in order to live there, even though they know that official permission from the Palace is issued only by its land affairs section called Panitikismo.

Based on those problems, this research aims to examine certainty as to the status of the land inhabited by the community and examine the legally applicable procedures for land use permits in order to obtain *Surat Kekancingan* and find a link between the regional government, village officials, BPN, and the Palace's Panitikismo as parties in charge of land affairs. This research involved the community with no legal permit inhabiting Sultan Ground in as the research object.

Most Glondong residents came from different areas as they fell victim to earthquakes. Most of them are underprivileged with a modest house and no permanent job. Moreover, they do not inhabit their own land as the underprivileged cannot afford it. (Mohindra, Narayana, and Haddad, 2010). The underprivileged are very susceptible to health, mental, education, and prosperity issues. (Najman et al., 2018). Teenagers aged 14 to 21 are vulnerable to depression. (Najman et al., 2010). The community's neighborhood contributes to their poverty as well (Schulz et al., 2012). Community empowerment will be more fruitful if it is based on the criteria identified directly from the community (Muhsin, Hapsoro, and Yuni, 2018) in the form of community participation (Loo, 2014). The community development program is carried out through community empowerment (Thomas et al., 2012) in a timely manner by examining their potential (Marcus, Wilkinson, and Marshall, 2002). Participatory Rural Appraisal is among the method adopted to find solutions to community empowerment issues through community engagement in analyzing the current condition and potential based on the principles of community engagement and participation-based implementation (Muhsin, Nafisah, and Siswanti, 2018).

Based on the previous research, *Surat Kekancingan* issued by the Palace of Yogyakarta's Panitikismo constitutes the legitimate permit to use the Palace's land (Nafisah, Muhsin and Siswanti, 2019). This research intends to help the community gain insights into the procedures for obtaining the permit to use the land they are inhabiting. The significance of the research is to inform the community of the bureaucracy and requirements to meet to obtain a permit to live on Sultan Ground.

METHODS OF RESEARCH

This research adopted Participatory Rural Appraisal (PRA) with community engagement and participates in the identification of problems and in search of their solutions. The community included not only residents but also stakeholders involved in residential land licensing such as heads of the hamlet or sub-village and neighborhood association. Primary data were collected by conducting interviews and disseminating questionnaires to community

members and to relevant hamlets with access to higher levels of government. The SWOT analysis was used to identify possible strengths, weaknesses, potentials, and opportunities to help determine certainty as to the ownership status and bureaucracy to obtain a permit for Sultan Ground in Glondong Tirtonirmolo hamlet, Kasihan, Bantul, Yogyakarta. Secondary data were gathered from relevant literature, including laws and other references.

RESULTS AND DISCUSSION

A map of conflicts were used to determine the relationship among relevant parties. In this research, the problem was the people’s concern about the status of the land they are currently inhabiting as they have not obtained official permission to use it. If one day they are required to abandon the land, they have no grounds to stay because they occupy it illegally. On the other hand, they have stayed in the land long enough, i.e. for more tan 13 years, have a family, built a house, and depend their lives on that place.

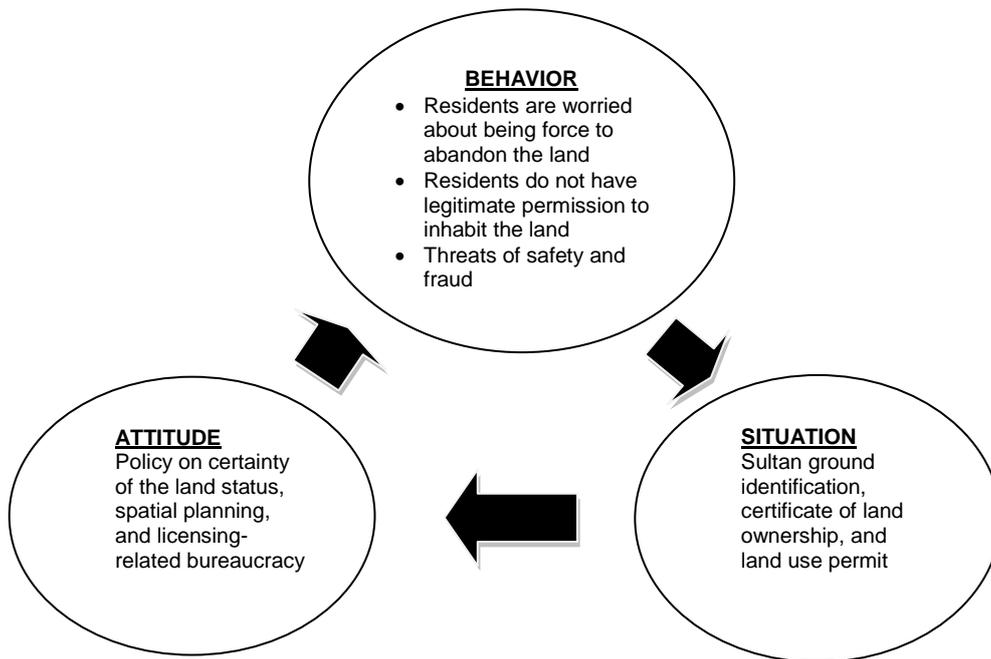


Figure 1 – Map of Residents’ Conflicts

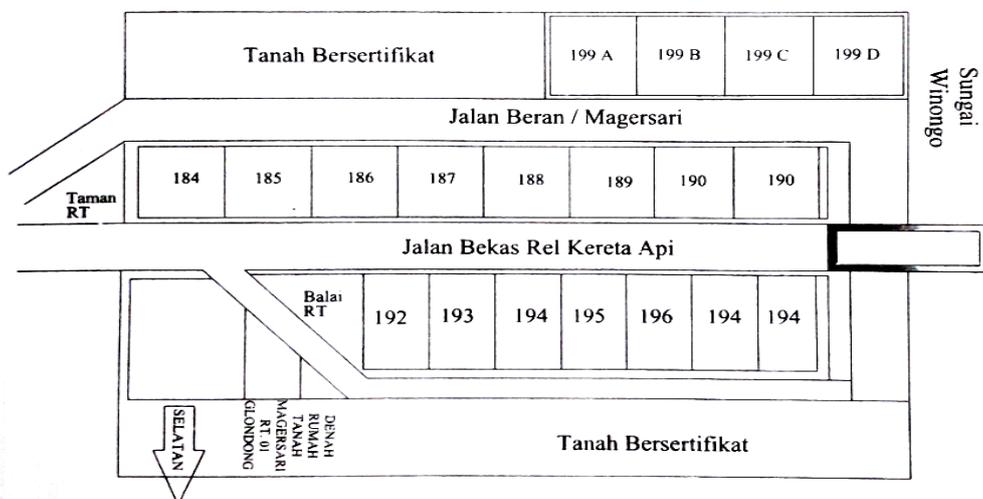


Figure 2 – Map of Sultan Ground in Glondong Hamlet

From the map of conflicts above, it can be formulated that there are 4 parties involved in this problem, they are residents, village officials, BPN, and Palace of Yogyakarta. Residents refer to those who inhabit the land; village officials refer to those in charge of spatial planning and public administration; BPN refers to a government body tasked with land affairs; and the Palace is the owner and controller of Sultan Ground land presently inhabited by residents.

After reading up on official documents in the form of land ownership certificates signed by the Palace and approved by the village head, it is revealed that the 927-square-meter land in Glondong Tirtonirmolo hamlet, Kasihan, Bantul, Yogyakarta is registered in the name of the Sultanate of Ngayogyakarta Hadiningrat or the Palace of Yogyakarta (Sultan Ground). This land is demarked, namely by Jl Pitoyo Rajiman in the north, Wedi Kengser in the east, railway lines in the south, and highways in the west.

Based on questionnaires distributed to residents as to land use, the research collected data as illustrated below:

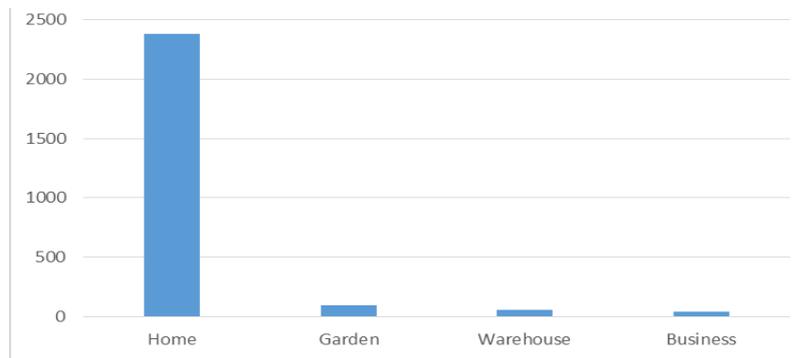


Figure 3 – Land use by residents

The figure above shows that most residents use the land occupied to build a house. The land means the world for them as it is the place where they live. The problema is they intend to obtain permission to inhabit the land. Inaccuracies in the area of land mentioned in the document and the one indicated in questionnaires resulted from different information provided by residents due to the absence of official data collection by either the government or BPN.

Table 1 – Conflict analysis

Residents	Individuals claiming as the heir of HB VIII	Officials
Residents want to inhabit the land because they do not have land to live in. Residents want to get official permission to inhabit the land. Residents wish that they can avoid fraud and intimidation. Residents lack knowledge and information about the law, rules, and bureaucracy related to licensing bureaucracy.	Claiming themselves as legitimate heirs of Sultan HB VII and owners of the land. Intending to take possession of Sultan Ground. Asking a sum of money to anyone who sith to obtain the permit to occupy the land.	Dividing the land into plots and categories. Charging a sum of money to residents to buy the land.

The problem dated back to the time after the earthquake in Bantul District in 2006. As The earthquake claimed more than 5,000 lives and inflicted damage to houses and injuries and trauma to many. Residents of Glondong hamlet whose houses were devastated in the incident then built a temporary shelter in the former Winongo Station in Glondong Tirtonirmolo hamlet, Kasihan, Bantul, Yogyakarta. They argued that the land is not individual property and vacant, albeit knowing that the land belongs to the Palace (Sultan Ground) and to inhabit it they must have an official permit.

As time passes, problems arise, i.e. rumour has it that the government has divided the land into plots and one has to pay a sum of money to inhabit it. On top of it, there are also

individuals claiming themselves as the heirs of Sultan Hamengkubuwono VII and asking a sum of money to residents who wish to live there. Some residents have paid a sum of money get permission, expecting to inhabit the land legally.

Table 2 – Conflict resolution stages

Stage		Activity		Output
1	Certainty as to the land status	1	Reading up on the Palace's official documents	The official status, which is legally evident and robust
		2	Reading up on BPN's official documents	
		3	Reading up on the regional government's official documents/notes	
2	View of relevant parties	1	Reading up on the legally applicable rules on land affairs established by BPN	Applicable regulation as to permits to use land
		2	Reading up on the legally applicable rules on SG established by the Palace	
		3	Reading up on legally applicable policy and agreement on spacial planning established by the regional government	
3	Implementation	1	Dissemination of information to residents	Complete application documents
		2	Data collection on SG right holders	
		2	Land demarking	
		3	Submission of complete documents	
4	Application	1	Official statement of the village official as to the land	Application submission
		2	Submission of documents to the Palace	
		3	Registration at BPN	
5	Assistance	1	Establishment of a joint association	The residents' association and teamwork
		2	Verification and validation	

RESULTS AND DISCUSSION

The permit to use Sultan Ground known as *surat kekancingan* is necessary for any residents who intend to use it. It constitutes a valid proof stipulating an agreement between the Palace and the resident as the holder of the right over such land. The following are provisions set out in *surat kekancingan*:

- The resident concerned is granted permission to temporarily use the land of Sri Sultan Hamengku Buwono of the Palace of Yogyakarta;
- The resident concerned is entitled to use magersari land to manage and exploit on his/her own interests and shall be solely responsible for any consequences (e.g. losses) or liabilities relating to it;
- The resident concerned shall use the land for residential purposes only and are not allowed to use it for other purposes that may do the other party harm, such as selling the land;
- The resident concerned may build a building or house used to run a business;
- The resident concerned is required to maintain the land in the same good conditions, and complies with the law;
- The resident concerned shall not transfer the right to use the land to another party;
- Land use for a particular period of time is set out in an agreement;
- The subsequent holder of the right to such land shall be entitled to the remaining term of the agreement and may have it extended;
- The transferee shall pay tributary;
- The tributary shall be paid to the Palace of Yogyakarta's Panitikismo office;
- In the event of termination of the agreement, the resident concerned shall hand over the land to the Palace in the same good conditions and shall not ask for damages in exchange of the building he/she has built;
- Violation committed by the resident concerned shall result in cancellation of the agreement and the land shall automatically be handed over to the Sultanate.

The following are primary requirements to obtain *surat kekancingan*: the applicant is an Indonesian national and submits an application to Panitikismo office. If his/her application is approved, the applicant will be granted *surat kekancingan* and register it at BPN.

CONCLUSION

Any residents who intend to inhabit Sultan Ground are required to comply with the legally applicable rules established by the Palace of Yogyakarta and BPN. They may apply for a permit to use such land, i.e. Surat Kekancingan, by submitting an application to the Palace's Panitikismo, followed by registration at BPN. Such an application must be approved by the regional government as evidenced by the issuance of a certificate. These residents need to build a community or association in order to facilitate the application, avoid a fraud, and get assistance.

ACKNOWLEDGEMENTS

The authors would like to thank the Ministry of Research, Technology, and Higher Education of the Republic of Indonesia for facilitating this research through the PTUPT Research Scheme and providing financial support to produce this publication

REFERENCES

1. Loo, C. (2014) 'The Role of Community Participation in Climate Change Assessment and Research', *Journal of Agricultural and Environmental Ethics*, 27(1), pp. 65–85. doi: 10.1007/s10806-013-9452-0.
2. Marcus, R., Wilkinson, J. and Marshall, J. (2002) 'Poverty Reduction Strategy Papers (PRSPs)--Fulfilling Their Potential for Children in Poverty?', *Journal of International Development*, 14(8), pp. 1117–1128. doi: 10.1002/jid.953.
3. Mohindra, K. S., Narayana, D. and Haddad, S. (2010) "My story is like a goat tied to a hook." Views from a marginalised tribal group in Kerala (India) on the consequences of falling ill: A participatory poverty and health assessment', *Journal of Epidemiology and Community Health*, 64(6), pp. 488–494. doi: 10.1136/jech.2008.086249.
4. Muhsin, A., Hapsoro, D. S. and Yuni, S. (2018) 'Community-Based Poverty Alleviation Using Rural Appraisal', *Russian Journal of Agricultural and Socio-Economic Sciences*, 6(June). doi: 10.1093/gigascience/giy047/4982941.
5. Muhsin, A., Nafisah, L. and Siswanti, Y. (2018) *Participatory Rural Appraisal (PRA) For Corporate Social Responsibility (CSR)*. 1st edn. Edited by N. F. Subekti. Yogyakarta: Deepublish. Available at: www.deepublish.co.id.
6. Nafisah, L., Muhsin, A. and Siswanti, Y. (2019) 'Development of citizen advocacy model using a participatory approach', *Russian Journal of Agricultural and Socio-Economic Sciences*, 1(January), pp. 412–419. doi: 10.18551/rjoas.2019-01.50.
7. Najman, J. M. et al. (2010) 'Family poverty over the early life course and recurrent adolescent and young adult anxiety and depression: A longitudinal study', *American Journal of Public Health*, 100(9), pp. 1719–1723. doi: 10.2105/AJPH.2009.180943.
8. Najman, J. M. et al. (2018) 'The inter- and intra- generational transmission of family poverty and hardship (adversity): A prospective 30 year study', *PLoS ONE*, 13(1), pp. 1–13. doi: 10.1371/journal.pone.0190504.
9. Schulz, A. J. et al. (2012) 'Associations between socioeconomic status and allostatic load: Effects of neighborhood poverty and tests of mediating pathways', *American Journal of Public Health*, 102(9), pp. 1706–1714. doi: 10.2105/AJPH.2011.300412.
10. Thomas, T. et al. (2012) 'Design of a Community Ownership and Preparedness Index: using data to inform the capacity development of community-based groups', *Journal of Epidemiology and Community Health*, 66(Suppl 2), pp. ii26–ii33. doi: 10.1136/jech-2011-200590.

DOI 10.18551/rjoas.2019-08.12

ANALYSIS OF THE SOCIO-ECONOMIC CHARACTERISTICS OF FISH TRADERS IN BASE OEBA FISH LANDING AT KUPANG CITY, INDONESIA

Majid Abdul

Study Program of Agribusiness, Faculty of Fisheries, University of Muhammadiyah,
Kupang, Indonesia

E-mail: abdulmajid.umk.1961@gmail.com

ABSTRACT

This research was conducted to understand the socio-economic characteristic of fish traders in fish landing bases, Oeba Kupang. To understand these characters, the mixed quantitative and qualitative data were applied. To get the data needed, a serial data collection such as field survey, in-depth interviews, focus group discussions (FGD) and observation activities were employed. The respondents using purposive sampling method as many as 70 respondents were successfully conducted. The results show that socioeconomic characteristics of these fish traders inshore areas characteristic with the average quality of low human resources. Generally, their jobs were hereditary as fish traders with an average of low educational background. Therefore, their incomes were still largely under the district minimum wage. However, to support their main incomes, the fish traders have other part-time jobs ranging from small trades, agriculture, and other livelihoods.

KEY WORDS

Socio-economic development, fish traders characteristics, Kupang area, public service.

Indonesia is the largest archipelagos in the world with an area of sea that can be managed by 5.8 million. It can be used for fishing and other coastal economic activities. The weakness of the fishery areas is a classical issue becoming a serious problem in realizing sustainable fisheries sector (Bappenas, 2014). Kupang city as the capital of East Nusa Tenggara province is an urban coastal area. The town is situated in the southern region of Indonesia has 51 villages where 16 villages located on the coast. Kota Kupang is an island city that most of the population live in coastal areas. Aquaculture production greatly affects the lives of coastal communities are mostly fishermen. This will affect the social-ecological resource-based coastal communities, especially fisheries. Coastal communities depending on the use and management of fisheries resources. They are a major component of the maritime community construction Indonesia (Kusnadi, 2009).

The population density and in line with the development of pressure on the environment. Coastal communities have distinct social characteristics that are different from the people who live on the mainland. One needs that are absolutely necessary to advance the fishing activity is the fishing port of adequate infrastructure. Fish merchant community life can be seen from the city Kupang social and economic aspects. Socially can be seen from the level of education, institutions, and organizations. On the economic aspects can be seen from the possession of the goods, livelihood, income, as well as venture capital (Dharmawan, 2008). Condition social economy fish traders in Fish Landing Base-related activities of production, distribution, and consumption. The role of fish trade can obscure more job opportunities in big scales and the availability of community needs. The fish trade in this study are those people who do fish trade for their living that sell fish directly to consumers. Therefore, the purpose of this research is to understand the social-economical Fish traders in the fish trading area in Oeba, Kupang.

METHODS OF RESEARCH

The research location was Fish Landing Base Oeba, Kupang, East Nusa Tenggara. The study was conducted from March to May 2019. The quantitative methods supported by

qualitative data was used through surveys, in-depth interviews, focus group discussion (FGD) and observation. The respondents were taken purposely sampling method as many as 70 respondents. Quantitative data were analyzed by the cross-tabulation form of diagrams and analyzed descriptively. Qualitative analysis was performed with data reduction, data presentation, and conclusion. To avoid data and interpretation errors are also used triangulation method where the data obtained from an informant who confirmed the informants.

RESULTS AND DISCUSSION

Kupang has an area of 180.27 km², in 2017 as many as 33.05 percent of the population of the city of Kupang live in coastal areas with a population density of 8773 inhabitants per km². The high number of residents in the city of Kupang one of which was contributed by migration. Most of them are from South Central Timor district, Kupang and Rote Ndao district. Data in the last five years (2010-2015), the migration to Kupang reached 53 042 persons or 15% of the population. Kota Kupang communities in coastal areas can not be separated from the dependence of the natural resources of the sea. According to BPS (2018) the number of households fishery sea fishery Kota Kupang for 1471 households, fishing fleets as much as 1735 units with capture fisheries production amounted to 25 274 tonnes. This significant growth shows migration social and cultural conditions that both ethnically and religiously diverse. Increased population density impact also on the high levels of unemployment and poverty (BPS 2018).

The density of the population in coastal areas with the middle to lower economic level and environmental stress on urban development shows that Kupang City is very vulnerable to environmental changes. The number of open unemployment in 2017 was 22 442 people with an unemployment rate of 12.5 percent. An increase of 1.34 percent compared to the previous year. The number of underprivileged families in 2015 was 4682. The poor population in Kota Kupang in 2017 amounted to 9.81 percent with a poverty line of Rp 504 179. The Human Development Index (HDI) in 2017 was 78.25 with a life expectancy of 68.58 years and real per capita expenditure of Rp 13 028. The coastal community business of Kota Kupang moved in the sector the average quality of human resources is still low.

Generally, they are involved in fishing effort to be hereditary and only rely on physical abilities, mostly fishermen, fishmongers and fish farmers. Development, human activities and the effects of physical factors contributing to sea beach damage in Kupang. Although the vulnerability of the coast and the environment in the bay mussel is low, the trend continues coast damage (DKP, 2007). Not only bay area in Kupang City but also it came under pressure due to development and settlement. According to Sunarto (2016) damage in Kupang Bay beach caused by land clearing for farms, fishery activities, the process of erosion residential natural and wild. The result is a vast reduction in coastal mangrove Kota Kupang during the years 1999-2013 were reached 37 percent (Siubelan et. al., 2015). In addition, marine sand and gravel mining, massive development in a commensurate beach, making coral reefs and mangrove damage more increase the development challenges in Kupang.

The development of coastal areas Kupang began at the entry of the Dutch colonial in Kota Kupang (Baun, 2008). The Dutch government was to build the port in the village of Lai Lai Bessi Kopan the entrance to trade in Kupang. The rapid economic development of urbanization makes Kupang destination for surrounding areas. Fish Landing Base (PPI) Oeba starts operation since the issuance of the Decree of the Head of Department of Marine and Fisheries of East Nusa Tenggara province. During its development, development of fishing ports done gradually by various means of support such as landing facilities, the provision of fuel, ship repair and other places. The existence of Fish Landing Base Oeba become centers where the fishing communities are directed to supporting the activities of local fishermen and fishermen entrants. Status of Fish Landing Base (PPI) Oeba is under the Regional Technical Implementation Unit (UPTD) and under the Marine and Fisheries Agency of East Nusa Tenggara. Fish Landing Base (PPI) PPI manager Oeba has its own head of

which were previously still subordinated to the Head of Department of Marine and Fisheries, East Nusa Tenggara. Socio-economic portrait fish traders will be based on education, experience, income, and employment.

The level of education is an education/ high school have been followed by the respondent. The education level of the respondents was divided into three categories, elementary school/ not graduated, junior high, high school and college. The analysis showed the majority of respondents' education only finished primary school/ not completed (46%).

Table 1 – The number and percentage of respondents by education level

Level of education	N	%
Primary School/ not completed	32	46
Secondary School	23	33
High School	13	18
Diploma	2	3
College/ University	0	0
Total	70	100

The quality of the fishing resources (HR) in Kota Sabang fishermen still low with an average level of education at the primary level. This condition is a consequence of the low number of educational facilities as well as its distribution is uneven. Economic demands and difficulties in finding employment opportunities make many fish merchants with a low level of education quality.

Revenue in the three villages strongly influenced research location fishery activities. Fishery becomes the largest source of income for households in the city of Kupang. It locates on the island and the coast and very close to the waters rich with marine resources makes almost all work as fishermen or fish traders. Revenue fish traders are quite varied. Revenue fish traders are the difference between revenues and costs of production. Revenue sources of income in the study area derived from the catch at sea and additionally from a second job.

Table 2 – Number and percentage of respondents based on the amount of revenue

Income are fishmongers	n	%
<1793.298	58	83
> 1793.298	12	17
total	70	100

Source: Primary Data, 2018.

The Government of East Nusa Tenggara (NTT) decided workers minimum wage (UMP) for 2019 in the amount of Rp 1,793,298. UMP in 2019 increased by 8.03% from Rp1,660.000 in 2018, The results of the analysis of the majority of respondents have an income below the MSEs. Low-income levels caused by few things in between the weather in the west season the fishermen not to fish due to unfavorable natural conditions. In addition, fishmongers recognize a decline in revenue from the fisheries sector in the last few years. Revenue fish merchant location research depends on the results of the total fishing activities.

Every fish seller had a different experience when fishing and trading. Old fishing experience is becoming fishmongers calculated in units of time (years) since it first became a fish seller until the study was conducted. The analysis showed that the experience of the respondents in the study site is dominated span of 21-30 years (49%).

Table 3 – Number and Percentage of Respondents Based on Experience into fishmonger

Experience as fishmongers	N	%
<10 years	13	19
10-20 years	15	21
21-30 years	34	49
> 30 years	8	11
Total	70	100

Source: Primary Data, 2018.

The longer a person works as a fish merchant will affect knowledge about coastal environmental conditions and market conditions. The experience became fish traders often be decisive in making adjustments to the price.

The main work has regularly performed the activity of a person to meet their needs for family income. The main livelihood of fish traders still relies on the sector marine and fishery. The results of the analysis show that the whole main job is fishmongers (100%). While another part-time job is a job done by someone to support and increase his family's income. Based on data analysis, it was found that the majority of the work at a second job community fishing is as breeder 21 (30%). Overall the fish traders have part-time job diverse. The part-time job mostly is done alone and together with the hiring of community members. Part-time jobs they work at all outside the fisheries sector such as farming, gardening, trade, workers and farmers.

Table 4 – Percentage of the Main job and a Part-time Job

The main job	n	%
fisherman	70	100
total	70	100
Part time Jobs		
farmer	8	11
trader	5	7
labor	11	16
breeder	21	30
fisherman	12	17
farmer	13	19
Total	70	100

Source: Primary Data, 2018.

CONCLUSION

Most of the socio-economic activities of Kupang communities are in the coastal and fishery sectors. Kota Kupang coastal communities and fisheries average is still the low quality of human resources. Generally, the fishing to be passed down to a fish merchant. Education of fish traders was low that resulting in revenue fishmongers most of the time is still below minimum wage district. However, fish traders also have jobs in fish byproducts in trade and agriculture.

REFERENCES

1. Badan Pusat Statistik. 2018. Kota Kupang dalam Angka 2018. Kupang (ID): Badan Pusat Statistik Kota Kupang.
2. Badan Pusat Statistik. 2018. Provinsi Nusa Tenggara Timur Dalam Angka 2018. Kupang (ID): Badan Pusat Statistik Nusa Tenggara Timur.
3. Bappenas, 2014 Kajian Strategy pengelolaan perikanan berkelanjutan. Direktorat kelautan and perikanan, Jakarta, Indonesia.p.5-130
4. Baun PI. 2008. Kajian Pengembangan Pemanfaatan Ruang Terbangun di Kawasan Pesisir Kota Kupang [Tesis]. Semarang (ID): Universitas Diponegoro.
5. Dharmawan AH. 2007. Dinamika Sosio-Ekologi Pedesaan: Perspektif and Pertautan Keilmuan Ekologi Manusia, Sosiologi Lingkungan and Ekologi Politik. *Sodality*.1(1): 1-40
6. Kusnadi. 2009. Keberdayaan Nelayan and Dinamika Ekonomi Pesisir. Pusat Penelitian Wilayah Pesisir and Pulau-Pulau Kecil. Lembaga Penelitian Universitas Jember. 152 hlm.
7. Satria A. 2015. Pengantar Sosiologi Masyarakat Pesisir. Bogor (ID): Yayasan Pustaka Obor Indonesia.
8. Siubelan YC, Murti Laksono K, Lubis DP. 2015. Dinamika Keruangan Pesisir Kota Kupang Provinsi Nusa Tenggara Timur. *JPSL*. 5(1): 71-79. doi:10.29244/jpsl.5.1.71.
9. Sunarto. 2016. Konservasi Pantai Teluk Kupang Nusa Tenggara Timur. *MGI*. 15(1): 83-100. doi:10.22146/mgi.13210.

DOI 10.18551/rjoas.2019-08.13

IMPLEMENTATION OF FARM MANAGEMENT AND FINANCIAL FEASIBILITY EVALUATION OF SHALLOT (*ALLIUM ASCALONICUM* L.)

Hardana Andrean Eka*, Pariasa Imaniar IImi, Riyanto Sugeng, Pratiwi Destyana E.

Faculty of Agriculture, University of Brawijaya, Malang, Indonesia

*E-mail: andrean@ub.ac.id

ABSTRACT

The research objective were (1) to analyze the financial feasibility of farmers who cultivated shallots in research area, and (2) to describe the management of shallot farm management in the highlands, especially in Batu City, East Java. Determination of research location of the study was conducted purposively, namely in the Junrejo Village, Junrejo subdistrict, Batu City. The method of retrieving farmer respondents was carried out using a probability sampling approach with a simple random sampling method. Data analysis methods that are suitable for research on farming analysis and marketing of shallots, based on an approach are included in the method of quantitative data analysis for farming income analysis and qualitatively for management analysis of shallots farming. The average commodity production of shallots is 14.6 tons / ha, with the calculation of the average total cost of farming including fixed costs (equipment depreciation, land tax, and land rent) as well as variable costs (seeds, fertilizers, pesticides, and labor)) issued 54,010,236.2 IDR/ha and the average selling price of IDR. 7,000. Then the calculation of farm income in the study area was IDR 47,916,916.2 / ha, so the data was said to be profitable onion farming. The management of shallot farming in Junrejo Village, Junrejo Subdistrict, Batu City has been running according to the field implementation, but there are several management functions that must be given attention such as controlling functions which are more concerned in field implementation especially with regard to farming input applications.

KEY WORDS

Farm management, financial feasibility evaluation, farming, agribusiness.

Management capability in agribusiness activities is important to be applied to various agricultural commodities. This management activity is needed because it is not merely a way of life in managing farming. In its meaning more than that, the process of implementing it in a company is needed in an effort to avoid the ups and downs in agribusiness (Rahardi, F., et al, 2000).

Handling shallot commodities needs optimal application in agribusiness management. The implementation of integrated management is needed because the commodity of shallots has many benefits and has high economic value. The consumption of shallots in Indonesia per capita per year reaches 4.56 kilograms or 0.38 kilograms per capita per month. The high demand for shallots that continues to increase does not only occur in the domestic market, but also has the opportunity to export (Directorate General of Horticulture, 2012)

Integrated management of agribusiness management is carried out to increase the production of shallots both in quantity and quality. Agribusiness management activities ranging from business planning, provision of facilities and infrastructure, crop cultivation, to handling the results and marketing are carried out in an integrated and mutually supporting manner. So that in this case a management is needed that can summarize natural factors, capital, labor, and technology with the factors of facilities and infrastructure and marketing.

In the implementation of agribusiness management management, one of them is the financial feasibility of shallots. The shallot farming in the highlands during the rainy season also needs to be known, given the high risk of failure. This activity is to find out whether the farming activities are still profitable and can provide incentives for farmers to do shallot farming in the highlands in the rainy season in a sustainable manner. In general, the analysis of shallot farming has only been done for the lowlands (0-500 masl) (Nurmalinda et al, 1992;

Soetiarso and Madjawisastra, 1993; and Nurmalinda et al. 1994), while for the highlands there is still little.

Based on the introduction above, the authors are interested in conducting research on "the application of farming management and evaluating the financial feasibility of shallots in rural Indonesia". The research objective was to (1) analyze the financial feasibility of farmers who cultivated shallots in the study area, and (2) describe the management of shallot farming in the highlands, especially in Batu City, East Java. Therefore, it is expected that the analysis of financial feasibility and management of shallots farms cultivated by farmers in the research area can be formulated as alternative actions in the form of technological improvements and appropriate policies to increase shallot production, which in turn can increase farm income.

METHODS OF RESEARCH

Determination of the location of the study was conducted purposively, namely in the Village of Junrejo, District of Junrejo, Batu City. The consideration of determining the location of this study is based on data from the Agriculture and Forestry Service of Batu City (2012). The research area is the center of commodity production of shallots with the achievement of land area and the largest production, which is 65 ha with a production of 665 tons in Batu City. The method of retrieving farmer respondents was carried out using a probability sampling approach with a simple random sampling method. The number of samples obtained based on the taking of the parel formula was 37 people (from a population of 356 people) who were in the NICE Farmers' Association.

Data analysis methods that are suitable for research on farming analysis and marketing of shallots, based on an approach are included in the method of quantitative data analysis for farming income analysis and qualitatively for management analysis of shallots farming.

Based on a review of previous research conducted by Zalukhu (2009), the total cost of farming production can be calculated using the following formula:

$$TC = TFC + TVC$$

Where: TC = The total cost of farming shallots; TFC = Total fixed costs for onion farming; TVC = Total variable cost of farming onions; Analysis of Total Farming Revenues.

The total receipt of shallot farming is the value of money obtained by farmers from the sale of the production of red onion farming at the price of the unit. The amount of income obtained by farmers can be calculated using the formula:

$$TR = P \times Q$$

Where: TR = Total receipt of onion farming; P = Selling price of shallots; Q = Total onion production.

Based on previous research conducted by Utami (2009), the amount of total farm income can be calculated using the formula:

$$\Pi = TR - TC$$

Where: Π = Income of onion farming; TR = Total Acceptance of onion farming; TC = The total cost of farming shallots.

After that, according to Soekartawi (2002) to identify the financial feasibility analysis, namely R / C , which was formulated as follows:

$$R / C = TR / TC$$

Where: TR = Total Revenue (total receipt); TC = Total Cost (total cost); If $R / C \geq 1$, then the farming is said to be feasible; If $R / C < 1$, then the farming is said to be inappropriate.

RESULTS AND DISCUSSION

Farming analysis is done by calculating the income level of shallot farming one planting season. In this analysis find out the amount of costs incurred by the farmer, such as the cost of production input facilities, labor costs, equipment depreciation costs, land tax costs, and land rental costs. In more detail, this will be discussed in the following explanation.

The total cost of farming production is the cost used by farmers in the implementation of the production process, the amount of which is obtained from the sum of fixed costs and variable costs. Both types of costs represent all the sacrificial values of various production inputs that are issued during the production process. The calculation of production costs for shallots consists of only fixed costs (not calculating capital interest) and variable costs, because the capital used by respondent farmers to manage shallots comes from personal capital, not in the form of loan capital.

Table 1 – Average Production Costs of Shallot Farming in the Research Area

No	Component	Average cost	
		(IDR)	(%)
A.	Fix Cost		
1.	Tools Depreciation	124.349,43	6,19
2.	Farmland Tax	175.414,12	8,72
3.	Rent land	1.710,73	85,09
	Total fix cost	2.010.488,87	100
B.	Variable cost		
1	Seed	12.545.000	24,13
2	Fertilizer	7.014.481,49	13,49
3	Pesticide	6.794.288,2	13,07
4	Labor	25.645.977,6	49,31
	Total cost production	54.010.236,2	100

Fixed costs on shallot farming are relatively fixed costs and do not depend on the amount of production obtained in farming. Components for fixed costs in this study consist of equipment depreciation costs, land tax costs, and land rent. In Table 1, it is also explained that the total average of the fixed costs of shallot respondent farmers is IDR. 2,010,488.87. Variable costs are costs which are used up in one planting season and affect the size and size of the production of shallot farming that will be produced. Raw material is a variable that can change the amount and value in the production process. The higher the production, the more raw material needs are needed. Based on Table 1, it can be seen that the total use of the average variable costs for the respondent farmers in shallot farming is IDR. 32,446,014.7. Variable costs in shallot farming consist of various components such as seeds, fertilizers, pesticides, and labor.

Total revenue in shallot farming is the value of money obtained from the sale of the farm products. The amount of acceptance in shallot farming is influenced by the size of the production produced, where the greater the production, the greater the income that will be obtained by the farmer. If the selling price is high and followed by a high amount of production, then the revenue obtained will be even greater, and vice versa.

Table 2 – Average Revenue of Shallot Farming

No	Description	Value
1	Average of Shallot Production (ton/ha)	14,6
2	Average of Shallot Price (Rp/kg)	7000
	Total of revenue average (Rp/kg/ha)	101.926.432,4

The production of each land between farmers who cultivate shallots varies depending on the size of the land and the production facilities and infrastructure used. The average total production produced by local farmers in shallot farming reaches 14.6 tons / ha with a selling price of IDR. 7,000 / kg. Pricing obtained by farmers from marketing institutions is based on

market prices affected by imported onions from India and China in several regions in Malang. Local red onions can compete because the quantity of imported shallots is decreasing in quantity in the market. In addition, in terms of quantity superior in terms of taste, the aroma is sharp; the skin color of the tuber is dark red, and crisp. Based on the calculation of the quantity of shallot production per hectare multiplied by the average selling price of shallots prevailing at the time of the study, so that for the total average income of respondent farmers in the study area it reached IDR 101,926,432.4 / kg / ha.

Farm receipts have an influence on the size and size of the income of farmers who cultivate shallots. This is because the income earned by the farmer comes from the difference between total revenues and the total production costs incurred during the farming process. So from that by knowing the amount of revenue and total costs that have been incurred by the respondent farmers, so that it can be seen also the amount of income earned. The average income obtained by farmers at one planting season can be seen in Table 3 below.

Table 3 – Average Income of Red Onion Farming

No	Uraian	Nilai
1	Rata – rata Penerimaan Bawang Merah	101.926.432,4
2	Rata – rata Total Biaya Bawang Merah	54.010.236,2
	Total Rata – rata Penerimaan (Rp/kg/ha)	47.916.916,2

Based on Table 3, by making a farm analysis it can be calculated mathematically in trying on one hectare of shallots. Farming is said to be profitable if the difference between revenue and expenditure is positive. Based on the calculations, it can be seen that the total average income obtained by farmers who practice shallots in the study area is Rp. 47,916,916.2 / ha, so that it can be said to be profitable.

The ratio of revenue to expenditure is the profit rate of onion farming. The R / C ratio for total costs is greater than 1, so it can be said that farming is carried out favorably by the farmer manager. The value of t calculated R / C ratio over the total cost is 1.9. Based on these results from the test, onion farming in Junrejo Village has a value of the ratio of receipts to expenditures that is greater than 1. This condition is one indication that onion farming in research locations is relatively profitable.

The initial preparation of planting shallots must begin with the opening and processing of the land perfectly in order to produce optimal shallot production. Opening and processing land is not a difficult activity. The land of farmers planted with shallots needs to be cleaned first from grass and various wild plants by using mechanical equipment such as hoes or using hands manually. The results of cleaning grass and wild plants are then burned outside the field. The purpose of land clearing is to eliminate grass as well as to prevent pests and diseases.

If the land used to plant shallots by local farmers has been established, for the first action is to determine the area unit and spacing pattern. The planting distance for shallots which is generally applied by respondent farmers in the study area is 15 x 15 cm.

The red onion seeds in Junrejo Village are from seedlings of Philippine red onions imported by way of imports from the Philippines. In general, farmers in the research area get onion seeds from marketers. Farmers still use seeds from abroad, because they are generally in accordance with local conditions. In addition, it can produce a good and optimal onion production.

Planting is done at the end of the rainy season. The way to plant them is to peel the skin of the bandage first and separate the cloves. To speed up the release of shoots, before planting the seedlings are cut to 1/3 part. Seeds are planted standing on beds until the surface of the incision is covered by a thin layer of soil.

The actions to preserve onion in the research location are as follows:

Watering can use a spout or sprinkler, or by flooding the water around a bed called the system. Irrigation is carried out regularly in accordance with the needs of plants, especially if there is no rain.

This activity aims to eliminate wild plants that grow around shallots, regulate the humidity of the garden, prevent pests and diseases, and reduce competition between shallots and weeds in getting water and nutrients from the soil. done together at the time the plant is 21 days old.

Stitching is carried out by replacing dead plants with new onion seeds. The replanting process is still carried out as long as the core plant is not yet two weeks old.

Fertilizing shallots is done so that plants are able to produce with optimal results and add and restore nutrients to the soil. The type and dosage of fertilizer used in onion farming in Junrenjo Village are using organic fertilizers and inorganic fertilizers. Fertilizers given are animal fertilizers with a capacity of 8-10 tons / ha, while inorganic fertilizers with urea doses of 100 kg / ha, ZA 200 kg / ha, TSP / SP-36 250 kg / ha. KCl 150 kg / ha (according to soil fertility).

Pests and diseases can attack all parts of the plant, starting from the roots, stems, and leaves. Pest control is carried out depending on pest and disease attacks. Pests that give up onion are caterpillar, leaf caterpillar, armyworm, aphids, and root nematodes. How to control pests in shallots in Junrejo village using furadan pesticides sprinkled during processing of land. Pests found on red onions are caterpillar onions and trips. Disease control in red onions uses adhesives and antracol. Adhesives are used to control molten disease (fusarium wilt), and antracol is used to control anthracnose.

Harvesting is done if the tuber is about 60 years old, enough, the leaves begin to turn yellow, how to remove the whole plant carefully so that there are no tubers left behind or abrasions. For 1 (one) hectare well-cultivated shallots, 10-15 tons can be produced (Rukmana, 1995). In the study area for the Philippines varieties yielded up to 14 tons / ha more than the average productivity produced by local farmers

In onion farming activities by respondent farmers in the research area are selective in determining / determining the parts in the organization as well as the tasks and functions of each that is in the organization. The local farmer institution, namely the NICE farmer group, can determine the position according to the expertise / ability possessed by the respondent's farmers. Farmer groups as a forum for organization in the hope that they can cooperate between farmers and other farmers.

In respondent's onion farming, they try optimally to increase production both in quality and quantity. Local farmers with spell farming from Batu's agriculture and forestry service were given guidance (counseling) and a comparative study was held to other areas followed by shallot farmers to increase their experience and knowledge, especially in onion farming.

In the implementation of the control, the respondent farmers were very careful in conducting farming and if necessary made corrections of the results of the work carried out so that what was being carried out by group members could be directed or guided to the road that was in accordance with the aims and objectives planned and determined by group. This activity was carried out by farmers on shallot respondents in Junrejo Village so that farming carried out by farmer groups could be successful and in accordance with group expectations.

The steps that are generally carried out by farmer groups on shallot farming in the study area include:

- Planning by farmers can be structured in onion farming so that it can produce the quality and quantity of shallots, so it can compete with shallots from other regions;
- Provision of inputs for fertilizers and pesticides must be in accordance with the prescribed dosage so that the shallot plants produce maximally by issuing minimum costs.

CONCLUSION AND SUGGESTIONS

The implementation of delay selling activity in rice farming business was conducted by Rice Milling Unit (RMU) managed by GapoktanMutiaratani. This unit provides mill and storage for farmers who want to delay their selling. Rice storage can be done partially so that farmers feel safe and flexible when they want to sell or take their grains. Furthermore, it is supported by warehouse facility with the capacity reaching 10 tons.

Agribusiness development in rice farming business with delay selling activity gives more benefits compared to non-delay selling activity. Regarding total cost, delay selling actors have higher cost than those non-delays selling but the difference of rice selling price per kilogram makes delay selling actors obtain more profit than those non-delays selling. Agribusiness development was also conducted by farming Business Corporation in which the farmers (i.e. farmers group MutiaraTani) in Selodakon Village runs it. As a start, pilot project with 10 hectare rice field was applied with irrigation technique starting from breeding to post-harvest.

Suggestions:

- As supporting facility, the capacity of grain storage in Gapoktan warehouse can be enlarged by expanding storage place and area of grain drying to accommodate the needs of seven farmer groups in order to participate in delay selling activity;
- The government can support the sustainable of this program especially for marketing aspect by cooperating GapoktanMutiaraTani with Bulog institution in Jember district.

REFERENCES

1. Agriculture Research and Development Berau. (2005). Sugar Cane in Indonesia. Agriculture Berau. Jakarta.
2. Bernatonyte, D. Burksaitiene, D. & Rimiene, K. (2013). Trade Specialization Pattern of Lithuania. Economics and Management: 2013. 18 (4).
3. Bernatonyte, D. & Normantiene, A. (2009). Estimation of Trade Specialization: the Case of the Baltic States. Ekonomika-Engineering Economics (2).
4. Burger, K. Kameo, D. & Sandee, H. (2001). Clustering of Small Agro-Processing Firms in Indonesia. International Food and Agribusiness Management Review, 2(3/4): 289–299.
5. Caporale, G. M. & Sova, R. (2015). Trade Flows And Trade Specialisation: The Case of China. Working Paper No. 15-07.
6. Churmen, Imam. (2001). Save sugar industry in Indonesia. Millenium Publisher. Jakarta.
7. Dachliani, D. (2006). Demand of sugar import on 1980-2003 in Indonesia. (Thesis). Faculty of Economic. Diponegoro university. Semarang.
8. Delroy Anthony Armstrong.(2004). The Potential Impact Of Trade Policychanges On Caribbean Sugar. B.S., Louisiana State University.
9. Dipl.-Ing. Dieter Bahndorf, Udo Kienle. (2004). World Market of Sugar and Sweeteners. OECD-FAO Agricultural Outlook 2016-2025, OECD Publishing, Paris
10. Firmansyah, (2008). The Position of Competitiveness and Specialization Trading of TeaIndonesia in Facing Globalization.Brawijaya. University. Malang.
11. Gaynor, P.E., and R.C. Kirk Patrick.(1994). Tome Series Modeling and Forecasting in Business and Economics. New York, Mc Graw hill.
12. Haley, Stephen.2013. World Raw Sugar Prices The Influence of Brazilian Costs of Production and World Surplus/ Deficit Measures. United States Department of Agriculture
13. Matsumura, Kanichiro.(2010). Demand and Supply Structure for Food in Asia. Sustainability 2011, 3, 363-395; doi:10.3390/su3020363
14. McConnell, Michael; Erik Dohman; Stephen Haley. (2010). World Sugar Price Volatility Intensified by Market and Policy Factors
15. McCormick (2009). Supply and demand: sink regulation of sugar accumulation in sugarcane. Journal of Experimental Botany, Vol. 60, No. 2, pp. 357–364
16. Rumánková, Lenka and Smutka, Luboš. (2013). Global Sugar Market – The Analysis Of Factors Influencing Supply and Demand. Volume LXI. No. 2, pp. 463–471
17. Sa'diyah, C. (2014). Factors that influence of economic performance for crystal sugar in Indonesia. (Thesis). Faculty of Agriculture. University of Brawijaya. Malang
18. Sinaga, N. (2006). Model Econometric Aplication. IPB Post Graduate. Bogor.
19. Susila, Wayan.R dan Bonar M. Sinaga. (2005). Analysis of Sugar Industry Policy in Indonesia. Jurnal Agro – Ekonomi Volume 23 No. 1, page 30-53.
20. Xue Xu and Hailong Xia.(2014). Analysis and Outlook of China's Sugar Industry Development. Proceedings of Selected Articles of 2013 World Agricultural Outlook.

DOI 10.18551/rjoas.2019-08.14

**DETERMINANTS OF PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES
MOVING IN THE PROCUREMENT OF GOVERNMENT GOODS AND SERVICES
IN BALI PROVINCE, INDONESIA**

**Sastrawan Kadek Agus*, Utama Made Suyana, Yasa I G.W. Murjana,
Purbadharmaja Ida Bagus Putu**

Faculty of Economics and Business, University of Udayana, Bali, Indonesia

*E-mail: kadekajus16@gmail.com

ABSTRACT

Procurement of goods and services by the government now uses an internet-based system where it will open the widest possible access to all businesses throughout Indonesia to compete and compete to become winners including in Bali Province. The change from manual to information technology based is a new challenge to improve performance for Balinese entrepreneurs including SMEs engaged in government goods/services management. The purpose of this study was to analyze the direct influence of the role of government, company size, human capital, social capital and entrepreneurial orientation, on the performance of SMEs engaged in the procurement of government goods / services in Bali, as well as to analyze the indirect influence of company size, social capital, human capital and the role of the government through entrepreneurial orientation towards the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali. The results of research and data analysis show that the role of government, company size, human capital, and entrepreneurial orientation is positive and significant to the performance of SMEs, social capital mediates partially human capital to SME entrepreneurial orientation, social capital does not mediate human capital on SME performance, and orientation entrepreneurship mediates fully with social capital on the performance of SMEs.

KEY WORDS

Performance, social capital, entrepreneurial orientation, human capital, company size, government role.

In the framework of implementing the government, both at the central and regional levels the government has the obligation to provide people's needs in various ways in the form of goods, services and infrastructure development (Simamora, 2009). The government must process the procurement of goods and services with third parties to meet the needs of the community. The implementation of the procurement of goods and services has to be able to provide legal certainty and business certainty and provide protection for Small and Medium Enterprises (SMEs) as an agent of the economy. Nowadays the procurement of goods and services by the government uses an internet-based system where it will open the widest possible access to all businesses throughout Indonesia to compete and compete to be winners including in the Province of Bali. The change from manual to IT-based is a new challenge for the SMEs and its performance in the Province of Bali that are engaged in the procurement of government goods / services.

In terms of business competition and state finance, the procurement of government goods and services is an important sector with the following arguments: First; procurement has a strategic meaning in protection and preference for domestic business actors seen from the amount of budget allocation for procurement of government goods / services that reaches a significant percentage of the State Budget (World Trade Organization Government Procurement, 2005). Every year, the procurement sector spends substantial funds. Second; procurement is a significant sector in efforts to economic growth (Presidential Decree No. 80 of 2003, 2001). Third, the procurement system that is able to apply the principles of good governance will encourage efficiency and effectiveness of public spending as well as the

three-pillar behavior (government, private sector and society) in the implementation of good corporate governance (Simamora, 2009).

Electronic procurement (E-Procurement) or electronic auction is the process of procurement of goods / services within the scope of government that uses information and communication technology devices in each process and step (Mustafa, 2010). Procurement of goods / services electronically is done by means of e-tendering or e-purchasing which will increase transparency so that fair competition among business actors can more quickly encourage and realize the creation of Open Government discussed earlier (World Bank Draft Strategy, 2003). E-Procurement is an inter-business purchase (business-to-business, B2B) and sales of goods and services through the internet (Australian Government Information Management, AGIMO, 2011), as well as Croom and Jones (2007).

This electronic goods / services auction makes the gateway wide open for thousands of entrepreneurs across the country to take part in government auctions wherever they are. Business competition is getting tougher because the electronic tender process only requires internet access and provides flexibility for all companies in Indonesia and even the world. The challenge for local entrepreneurs has begun but, inevitably, local entrepreneurs must be ready to compete with non-local entrepreneurs. The ability of regional entrepreneurs in competing to win a tender was tested when the increase in competitors from those who had previously come from their own regions now increased competitors from other regions.

With the enactment of e-procurement in the Province of Bali, there is a significant reduction in the rupiah earned by local Balinese businessmen in the procurement of government goods / services every year starting from 2012 to 2015 except in 2013 there was an increase. In 2012 local Balinese businessmen gained 87.5 percent of the total amount of rupiahs being auctioned. In 2013 there was an increase, namely the Balinese businessmen only got 96.07. Significant decline occurred in 2014, of which the total number obtained by Balinese businessmen was only 70.75 percent and in 2015 Balinese entrepreneurs only got almost half the percentage, 57.11 percent (ULP Bali Province, 2016). Thus it can be said that the changes in the system of procurement of government goods and services have caused local Balinese SMEs to be less competitive compared to outside SMEs. If this continues to cause losses to the regional economy in general, because the existence of SMEs is expected to have a multiplier impact on other sectors, both in the form of added value and labor. Theoretically and empirically the competitiveness of SMEs seen from their performance can be influenced by several factors. Factors that can affect the performance of SMEs between the role of government, company size, human capital, social capital and entrepreneurial orientation. Based on the description above, the purpose of this study was to analyze the direct influence of the role of government, company size, human capital, social capital and entrepreneurial orientation, on the performance of SMEs engaged in the procurement of government goods / services in Bali Province, and to analyze indirect influence of company size, social capital, human capital and the role of government through entrepreneurial orientation towards the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali.

LITERATURE REVIEW

According to Sumarni (2013), the need for government roles and functions in the economy. Economic development in many countries generally occurs due to government intervention both directly and indirectly. Government intervention is needed in the economy to reduce market failures such as monopoly, price rigidity, and the negative impact of private business activities. The market mechanism cannot function without the existence of rules made by the government. This rule provides the basis for the application of rules of the game, including the provision of sanctions for economic actors who violate them. The role of the government becomes more important because the market mechanism alone cannot solve all economic problems. To ensure efficiency, equity and economic stability, the role and function of the government is absolutely necessary in the economy as a controlling market mechanism.

The government is very instrumental in empowering SMEs as mandated in Law Number 20 of 2008 concerning Micro, Small and Medium Enterprises. The purpose of empowerment according to this law is to (1) realize the structure of a national economy that is balanced, developing and just; (2) grow and develop the capacity of small and medium micro enterprises to become strong and independent businesses; and (3) increasing the role of small and medium micro enterprises in regional development, employment creation, income distribution, economic growth, and alleviating people from poverty. The government's role also influences entrepreneurship. According to Wahyuni (2008), entrepreneurship begins with the existence of innovations triggered by personal factors and environmental factors. Lack of government support in the implementation of new goods and services procurement systems Local SMEs will be unable to compete with outside SMEs.

Hall Lengnick and Cynthia A. Lengnick Hall (2003) mentions human capital "... is the know-how, skills, and capabilities of individuals in organizations. Reflecting the competencies of human capital people bring to their work. Seeing this understanding, it appears that human capital is an important factor in organizations, because it can make a large contribution to the progress and development of the organization. Furthermore, Becker stated, human capital is that human beings are not just resources but are capital that produces returns and that expenditure made in order to develop the quality and quantity of capital is an investment activity.

According to Fitz-ens (2000) the notion of human capital can be explained as a combination of factors as follows: a) The characteristics of a person he carries from birth to work, intelligence, energy, generally positive attitudes, reliability, commitment, b) A person's ability to learn, talent, imagination, creativity, and what is often referred to as street smart, c) Motivation of someone to share information and knowledge, team spirit and goal orientation. Furthermore Hall (2003) explains it by quoting some of the meanings of human capital as follows: 1) Human capital is "the knowledge, skills and capabilities of individuals that have economic value to an organization" (Bohlander, Snell & Sherman, 2001), 2) Human capital is the collective value of an organization's know-how. Human capital refers to the value, not reflected in accounting systems, which results from an investment organization must recreate the knowledge in its employees "(Cortada & Woods, 1999), 3) Human capital is" all individual capabilities, the knowledge, skill, and experience of the company's employee and managers "(Edvinson & Malone, 1997).

In the era of globalization and the world economy in the current free market, it began to appear increasingly clear that social capital became an important capital. Social capital is the ability of the community to work together to achieve common goals in a group and organization (Coleman, 1988). Therefore it is not wrong if Bourdieu (1986) presents his criticism of the terminology of capital in conventional economics. He stated that capital is not just a means of production, but has a broader understanding and can be classified into 3 (three) groups, namely: (a) economic capital (economic capital), (b) cultural capital, and (c) social capital. Since the first study of social capital was carried out in early 1916 by Lyda Judson Hanifan until the birth of a modern study of social capital in the late 20th century pioneered by Robert D. Putnam, James S. Coleman, and Francis Fukuyama, many definitions were given by experts on social capital (Inayah, 2012). Fukuyama (1995) defines, social capital as a series of informal values or norms that are shared among the members of a group that enables cooperation between them.

Cox (1995) defines social capital as a series of processes of human relations that are supported by networks, norms and social beliefs that enable efficient and effective coordination and cooperation for mutual benefits and virtues. The definition of social capital according to Putnam (1993) is the appearance of social organizations, such as trust, reliability, networks that can improve community efficiency by facilitating coordination and cooperation for mutual benefit. According to Coleman (1988), social capital is an aspect of social structure that facilitates the actions of individuals or corporate actors / companies in social structures. In this case the same as other types of capital, social capital is also productive, which makes achieving individual or company goals will not materialize without the existence of social capital.

Fukuyama (1999) states that social capital is the ability that arises from the existence of trust and a set of informal values or norms that spread among group members that allow cooperation between them. This collaboration occurs when members of the community meet what is expected between them and believe that others will behave reliably and have honesty. Cohen and Prusak (2001), and Cox Eva (1995) provide a definition that social capital is a series of processes of human relations that are supported by networks, social norms and beliefs that enable efficient and effective coordination and cooperation to gain benefits and virtues together. The ability of business actors is different; this ability is determined by the level of entrepreneurship orientation and business scale that runs from the SME scale to the Big Business, also influenced by many other factors such as educational background, experience, age, ethnicity, family. According to Slater and Narver (1995), a business can reach its full potential of market orientation, when it is caused by the tendency of the nature of entrepreneurial orientation that is appropriate and in accordance with the design and organizational structure. Drucker (2008) argues that entrepreneurial orientation is the nature, character or traits inherent in someone who has a strong will to realize innovative ideas into the real world of business and can develop them strongly.

Entrepreneurial orientation is the ability to create something new and different. The entrepreneurial orientation of an entrepreneur can lead to increased business performance (Covin and Slevin, 1989). Scarborough and Zimmerer (1993) propose the definition of entrepreneurship as follows: someone who creates a new business by considering risks and uncertainties to achieve profit and growth by identifying opportunities and combining them with the resources needed to take advantage of these opportunities.

According to Reswanda (2011), from several opinions about entrepreneurial orientation, the concept of entrepreneurial orientation can be synthesized as a mental attitude, outlook, insight and mindset and pattern of one's actions towards tasks that are their responsibility and are always customer-oriented. Miller and Friesen (1982), Venkatraman and Ramanujam (1986), Lumpkin and Dess. (1996), Ozsomer et al. (1997), Covin and Slevin (2000), Morris and Kuratko (2002), Cooper et al (2004), Robinson and Stern (2007), Frishammar and Horte (2007), and Prince (2012) say that entrepreneurial orientation is formed by the three main dimensions are innovative, proactive and risk taking.

Wedari (2006) in Eka (2010) states that company size is an increase from the fact that large companies will have a large market capitalization, a large book value and high profits. Whereas in small companies will have a small market capitalization, small book value and low profit. According to Ferry and Jones in Sujianto (2001), company size describes the size of a company as indicated by total assets, total sales, average total sales and average total assets. Another study, the size of the company is proxied by the total assets of the company. Total assets are chosen as a proxy for company size by considering that asset values are relatively more stable than market capitalized and sales values (Wuryatiningsih, 2002). According to Analysis (2011), the size of the company has a different influence on the value of the company of a company. If the company has large total assets, the management is more flexible in using the assets in the company. This management's freedom is comparable to the concern that the owner has for his assets. Performance is the result or output of a process (Nurlaila, 2010). According to the behavior approach in management, performance is the quantity or quality of something produced or services provided by someone who does the work (Luthans, 2005). The same thing was stated by Armstrong (1999) that performance is the work of behavior. This definition of performance associates the results of work with behavior. As behavior, performance is a human activity that is directed at implementing organizational tasks assigned to him.

According to Bastian (2006), performance is an illustration of the achievement of an activity, program or policy in realizing the goals, objectives, mission, and vision of the organization. List of what you want to achieve is contained in the strategic planning of an organization. In general, performance is an achievement achieved by the organization in a certain period. According to Neely (2002), performance measurement can be defined as the process of quantifying the efficiency and effectiveness of past actions. The importance of measuring company performance according to Keats and Hitt (1988), that performance

measurement can be used as a measure of the company's success in a certain period, performance assessment can also be used as feedback for future improvements or improvements in performance. The measurement of company performance referred to in this study is the performance of SMEs as measured by several indicators, namely: sales growth, profit growth, and growth in the number of customers or market share (Zaenal, 2012).

METHODS OF RESEARCH

This study uses 3 exogenous variables, namely the role of government (PP), human capital (MM), and company size (UK), three endogenous variables, namely: social capital (MS), entrepreneurial orientation (OK), and business performance (UK) Variables of social capital (MS) and entrepreneurial orientation (OK) also act as mediating variables.

Variable Definitions:

- The role of the Government (PP), is the role carried out by the government to empower SMEs with indicators: a) Facilitators, b) Regulators, and c) Catalysts, referenced from Diva (2009);
- Social Capital (MS) is abstract capital owned by SMEs with their communities in order to manage SMEs, with indicators: a) Networks, b) Trust, c) Norms, referenced by Ridell (1997);
- Human Capital (MM) is an asset that has contributions from human resources that play a role in the development and growth of SMEs with indicators: a) Education, and b) Experience, referenced from Maufi (2010);
- Company size (UP) in this study is measured by three indicators: a) Labor, b) Total Debt, and c) Total Assets, referenced from Setiyadi (2007);
- Entrepreneurship Orientation (OK) is the nature, character or characteristics inherent in SME actors in this study measured by three indicators: a) Innovative, b) Proactive, and c) Risk Taking, referenced from Covin and Slevin (1989) and Horte (2007);
- SME Performance (KU), is the result obtained by SMEs in a certain period of time in this study measured by three indicators: a) Sales, b) Profit Growth, and c) Market Sharing, referenced from Zaenal (2012).

All indicators are measured by a Likert scale, using scores from 1 to 5.

Based on the literature review, a conceptual framework of relationships between variables can be made as shown in Figure 1.

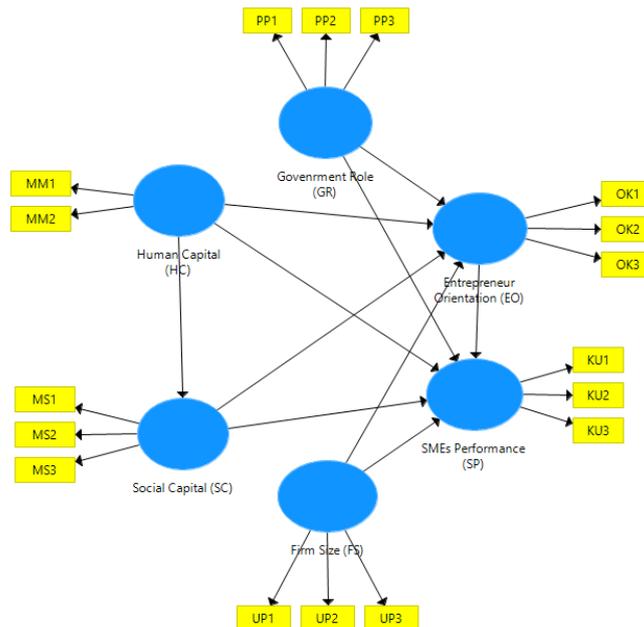


Figure 1 – Relationship of Research Variables Determining the Performance of Small and Medium Enterprises Engaged in the Procurement of Government Goods and Services in Bali Province

The research data is obtained from primary sources by taking 100 entrepreneurs engaged in goods and services in the Province of Bali conducted in August and September 2017. The method of sampling was carried out using stratified random sampling that met certain criteria: 1) the provider had the qualifications of small and medium enterprises are proven by the ownership of a Trading Business License (SIUP), 2) having participated in an e-procurement with the Bali Provincial Government, and 3) being an active company management both director and company manager. The research data was obtained by structured interviews with respondents using questionnaires, and also conducted by in-depth interviews with several informants.

Data in Likert scale were first tested for validity and reliability. Furthermore, the data was analyzed using structural equation models (SEM) with alternative Partial Least Square or PLS (Ghozali, 2011). The complete concept of the relationship between variables in this study is presented in Figure 1. Based on Figure 1, using PLS techniques specifies the relationship between variables, including: 1) inner model, 2) outer model, and 3) indirect influence described as follows.

Evaluation of the measurement model or outer model is done according to the shape of the relationship between the indicator and the construct. In the PLS it is known that there are two types of relationships between indicators and their constructs, in this study used a reflective model. The processed data is then evaluated in two stages, namely evaluating the outer model and inner model. The first step is to evaluate the measurement model or outer model which is done according to the type of relationship between the indicator and the construct. The second evaluation is done by looking at the validity of the inner model. In PLS inner model also called inner relations which describe the relationship between latent variables based on the substance of the theory. There are three types of evaluations that are important to the inner model, namely (1) evaluation of goodness of fit, (2) direct influence test, and (3) test of indirect influence or mediation. Before evaluating the inner model, a structural equation system is first made. Based on Figure 2, a structural equation system is made as follows:

Relationship between MM to MS:

$$MS = \beta_1 MM + \varepsilon_1 \quad (1)$$

Relationship between PP, MM, MS, and UP to OK:

$$OK = \beta_2 PP + \beta_3 MM + \beta_4 MS + \beta_5 UP + \varepsilon_2 \quad (2)$$

Relationship between PP, MM, MS, UP, and OK to KU:

$$KU = \beta_6 PP + \beta_7 MM + \beta_8 MS + \beta_9 UP + \beta_{10} OK + \varepsilon_3 \quad (3)$$

Where:

PP = the role of the government;

MM = human capital;

MS = social capital;

UP = company size;

OK = entrepreneurial orientation;

KU = business performance;

$\beta_1, \beta_2, \dots, \beta_{10}$ is the path coefficient;

$\varepsilon_1, \varepsilon_2, \dots, \varepsilon_3$ is *error*.

RESULTS AND DISCUSSION

Overall, the full model of the effectiveness of distribution of poor rice in Rasung Regency is presented in Figure 2.

To find out whether the indicator used to form a construct or latent variable is valid, the analysis is carried out as follows.

The results of PLS output regarding convergent validity are shown in Figure 2. It is known that all indicators have loading values above 0.50, which means that the constructs made meet the convergent validity requirements.

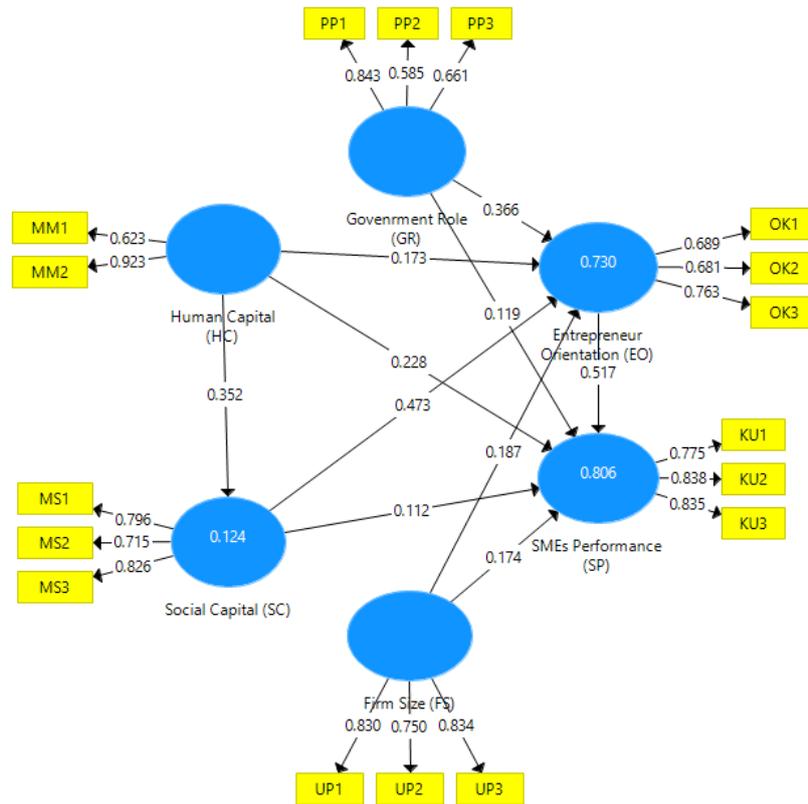


Figure 2 – Full Model of Determinants of Performance of Small and Medium Enterprises in the Government's Procurement of Goods / Services in the Province of Bali

To find out the validity of a construct can also be seen from the discriminant validity. The construct feasibility can also be seen from the discretionary validity (DV) through Average Variance Extracted (AVE), composite reliability (pc) generally used for reflective indicators that aim to measure the internal consistency of a construct, and Cronbach Alpha. The processed data shows that all research constructs, namely the role of government, human capital, social capital, company size, entrepreneurial orientation, and SME performance is valid because it has a discretionary validity that is far above 0.70 for Composite Reliability and Cronbach Alpha, and greater than 0.50 for Average Variance Extracted or AVE (Ghozali, 2011).

The inner model test is first done by evaluating the goodness of fit, namely by looking at R square or R2. For R2 in this study there are two dependent constructs, namely Inclusive Economic Growth (X2) and Community Welfare (Y), as presented in Table 2.

Table 2 – Inner Model Test

Variable	R Square	Information
1. Social Capital (MS)	0,124	Weak
2. Entrepreneurship Orientation (OK)	0,730	Strong
3. Performance of SMEs (KU)	0,806	Strong

Table 2 shows that the R-square value of the variable social capital (MS) is 0.124. Because the R-square value is 0.124 which is less than 0.190, it means that the influence of human capital on social capital is classified as "weak" according to Chin's opinion (in Ghozali, 2011). The R-square variable of entrepreneurship orientation (OK) is 0.730, and the performance of SMEs (KU) is 0.806, values greater than 0.667 are classified as "strong".

Based on the R-square value, the three endogenous variables can be calculated Q2 or Stone-Geiser Q Square tests:

$$Q^2 = 1 - \{(1 - R_1^2)(1 - R_2^2)(1 - R_3^2)\} = 0,954$$

The results of Q2 or Stone-Geiser Q Square test calculations are equal to 0.954. This value is quite large and can be said to have a high predictive prevalence, so the resulting model is worthy of predicting. The Q2 or Stone-Geiser Q Square test value of 0.954 means that 95.4 percent of the variation in the Business Performance of SMEs Engaging in the Procurement of Government Goods and Services in Bali is explained by variations in the Role of Government, Human Capital, Social Capital, Entrepreneurship Orientation, and Company Size, while the remaining 4.46 percent is explained by other variables not in the model.

The results of testing the significant influence of interconnections are presented in Table 3. From Table 3 all constructs are positively and significantly related to the probability of less than 1 percent. The larger variable influences the welfare of the people in the Regency / City in Bali Province, 2012 - 2017 is inclusive economic growth with a coefficient of 0.604, while the financial performance is smaller, which is equal to 0.426.

Table 3 – Path Coefficient Determination of Performance of Small and Medium Enterprises Engaged in the Procurement of Government Goods / Services in the Province of Bali

Variable Relationships	Original Sample	Standard Deviation	T Statistics	P Values
MM → MS	0,352	0,103	3,420	0,001
PP → OK	0,366	0,062	5,865	0,000
MM → OK	0,173	0,073	2,368	0,018
MS → OK	0,473	0,072	6,607	0,000
UP → OK	0,187	0,079	2,365	0,018
PP → KU	0,119	0,061	1,950	0,052
MM → KU	0,228	0,045	5,051	0,000
MS → KU	0,112	0,073	1,524	0,128
UP → KU	0,174	0,053	3,268	0,001
OK → KU	0,517	0,086	6,005	0,000

Source: Research data processed.

PP = Role of the Government; OK = Entrepreneurial Orientation;

MM = Human Capital; UP = Company Size;

MS = Social Capital; KU = SME performance.

Based on Table 3, it can be explained that human capital has a positive effect on social capital with P. Value of 0.001. The role of government, human capital, social capital, and company size has a positive effect on entrepreneurial orientation with P. Value less than 0.05. The role of government, human capital, company size, and entrepreneurial orientation has a positive effect on the performance of SMEs with P. Value of less than 0.05, while social capital though has a positive effect on SME performance, but not significantly, because P. value is 0.128. Based on Table 4, it can also be seen that the variables that most influence the entrepreneurial orientation are social capital, namely the path coefficient of 0.473, then followed by the role of government, while the smallest is human capital. The variable that has the greatest influence on the performance of SMEs is entrepreneurial orientation with a path coefficient of 0.517, while the smallest is social capital with a coefficient of 0.112.

Table 4 – Indirect Effects Value of Determination of Performance of Small and Medium Enterprises in the Field of Government Goods / Services Procurement in Bali Province

Variable Relationships	Through Variables	Original Sample	Std. Deviation	T. Statistics	P. Value
MM → OK	MS	0,166	0,048	3,465	0,001
PP → KU	OK	0,189	0,053	2,565	0,000
MM → KU	MS, OK	0,215	0,050	4,323	0,000
MS → KU	OK	0,245	0,054	4,559	0,000
UP → KU	OK	0,097	0,044	2,217	0,027

Source: Research data, processed.

PP = Role of the Government; OK = Entrepreneurial Orientation;

MM = Human Capital; UP = Company Size;

MS = Social Capital; KU = SME performance.

The indirect effect of an exogenous variable with endogenous variables in this study is presented in Table 4. Based on Table 4 it can be seen that the variable social capital indirectly affects the orientation of entrepreneurship through social capital with P. Value of 0.001, the role variable of government, human capital, and social capital has an indirect effect on the performance of SMEs through an entrepreneurial orientation with P. Value of 0,000, while the size of the company indirectly influences the performance of SMEs through an entrepreneurial orientation with P. Value of 0.027.

DISCUSSION OF RESULTS

The Influence of Human Capital on SME Human Capital in the Procurement of Government Goods and Services in the Province of Bali. The results of the research and data analysis show that human capital has a positive and significant effect on the social capital of SMEs engaged in the procurement of government goods / services in the Province of Bali. This means that if human capital increases, the social capital of SMEs also increases. This is in accordance with the opinion of Widodo (2009), that the latest developments in social capital concluded that the value of human capital can be increased through willingness and goodwill built with a series of social relations that can be done to facilitate collective action. Quality human capital and based on strong social capital can be predicted to improve performance.

Some studies show that group learning can improve the results of group work and feeling united in the organization (Cunningham, 2002). For example, the results of observations on the impact of the Leadership Development Program (LDP) at PT. Caltex Pacific Indonesia a few moments after the LDP program was implemented showed a strengthening of social capital. Fellow members of the company feel more familiar and see others as part of the company's success. Afiatin (2003) reported various research results that looked at the impact of using outbound training for personality development that fosters human capital. In addition, Johnson & Johnson found that being in training has nurtured a sense of community life (Ancok, 2002). This study is not in accordance with the research of Piazza-Georgi (2002) which concluded that investment in human capital will cause a loss of social capital because it cannot stand alone, because one cannot invest together well in the form of capital.

Influence of the Role of Government, Human Capital, Social Capital, and Company Size on SME Entrepreneurship Orientation in the Procurement of Government Goods and Services in the Province of Bali. The results of research and data analysis show that the role of the government has a positive and significant effect on the entrepreneurial orientation of SMEs engaged in the procurement of government goods / services in the Province of Bali. This means that if the role of the government increases in empowering SMEs, then the SME entrepreneurial orientation will also increase. Empowerment provided by the government in the context of business empowerment has been able to foster the innovation of SME Procurement of Goods / Services in Bali Province to win the competition in the government tender process.

The results of this study are consistent with the research of Hadiyati (2011), that the government's efforts to maintain the growth of MSMEs have resulted in two strategic programs, namely entrepreneurship programs and partnership programs. The entrepreneurship program will be the basis for developing human resources. As the results of Wahyuni's (2008) study, that entrepreneurship begins with the existence of innovations triggered by personal factors and environmental factors. Personal factors that influence entrepreneurship are education, experience, commitment, vision, courage to take risks, and age. Environmental factors are sociology, organization, family, opportunities, competitors, investors, and government policies.

This research supports the research conducted by Chen (2006) which states that the government must play an important role in protecting micro, small and medium enterprises to make it develop in a competitive environment with big business. The study also supports the research conducted by Chowdhury (2007) in Bangladesh which concluded that the role of

government is needed in aspects of political stability and law enforcement, infrastructure improvement, corruption prevention, education and training for entrepreneurs, and financial support with the aim of encouraging entrepreneurship.

The results of research and data analysis show that human capital has a positive and significant effect on the entrepreneurial orientation of SMEs engaged in the procurement of government goods / services in the Province of Bali. This means that if the quality of human capital increases, the SME entrepreneurial orientation will also increase. Education and experience that are part of human capital are things that greatly influence the entrepreneurial orientation, especially the entrepreneurial orientation of SME entrepreneurs in the field of procurement of government goods and services where Mosher (1967) states that the higher the formal education experienced by a person, the level of knowledge and skills the higher, as well as the more open his attitude towards new technology so that the procurement of government goods and services that were previously manual has now shifted to electronics through the internet.

The results of this study are in line with Arrow's statement in Hubbard, O'Brien, and Rafferty (2012) that the development of human capital can be done through various experiences that are passed on by someone. This research is also in accordance with Suparta's (2005) study, which states that education levels greatly determine a person's ability to make decisions, so they could create something.

This study also has similarities with the research of Bianchi (2001) where the results of the study explain that human capital that is specific to an industry plays an important role in producing innovative activities in an industry if this is characterized as a form of transaction or exchange of knowledge high quality among the main players in an industrial environment.

The results of the research and data analysis showed that social capital had a positive and significant effect on the entrepreneurial orientation of SMEs engaged in the procurement of government goods / services in the Province of Bali. This means that if social capital increases, the SME entrepreneurial orientation will also increase. Social capital can be explained as a product of human relations with each other, especially intimate and consistent relationships. Social capital refers to networks, norms and beliefs that have the potential to productivity. However, social capital is different from financial capital, because social capital is cumulative and self-reinforcing (Putnam, 1993). Therefore, social capital will not run out if used, but increases. Unlike human capital, social capital also refers to the ability of people to associate with others (Coleman, 1988). Relying on shared norms and values, the association between humans produces trust which in turn has a large and measurable economic value (Fukuyama, 1995). Social Capital is not only built by one individual, but will lie in the tendency to grow in one community group to socialize in the form of participation as an important part of inherent values (Hasbullah, 2006).

The tight level of tender competition forces SMEs to procure goods and services in Bali to get out of the nest to establish business networks with large distributors. The working philosophy of the competitive and unyielding people of Bali helps Balinese entrepreneurs compete in the procurement of government goods and services. According to Geriya (1995) states that Balinese in conducting business activities, Balinese people are said to have a high work ethic seen from the orientation of Balinese cultural values that are essentially work, both in terms of family life, economic, social, and religious tend to be mostly oriented on the work. Murjana (2005) states that one clear concession related to Balinese behavior in the context of enthusiasm for progress is the competitive spirit that in daily life this competitive spirit is motivated by conception of embarrassment. *Jengah* has the connotation of competitive spirit, competitive pride, in creating high-quality works. According to Mantra (1990), embarrassment is the dynamic traits possessed by culture, namely a spiritual movement that becomes the base of all changes in people's lives. Balinese embarrassment has the connotation of competitive spirit, competitive pride in the sense of competitiveness is very closely related to the courage in taking risks (risk taking) when competing in the procurement of goods / services of the government, dare to bid responsively with all risks that must be borne by calculation precision.

This study supports the research conducted by Farsi and Najmabadi (2013) who conducted a study of executive managers of vehicle parts factories in Iran by using 225 samples where the result was that social capital had a positive effect on the entrepreneurial orientation of the executive managers. Social capital is the best foundation for entrepreneurial development and facilitates the interests of employers in facing competition (Huang and Wang, 2011; Huang et al., 2010; Kaasa, 2009; Chisholm and Nielsen, 2009). This research is in line with Wimba's research (2015) which states that social capital directly has a positive and significant effect on entrepreneurial orientation. This study also supports the research conducted by Eraydin and Bilge (2005), that networking and innovation are very important things that provide competitive capability in industrial clusters in the process of globalization.

The results of the research and data analysis showed that the size of the company had a positive and significant effect on the entrepreneurial orientation of SMEs engaged in the procurement of government goods / services in the Province of Bali. This means that if the size of the company increases, the SME entrepreneurial orientation will also increase. According to Ferry and Jones in Sujianto (2001), if the company has large total assets, management is more flexible in using the assets in the company. The limited resources in SMEs can be compensated by the various advantages possessed by SMEs namely flexibility, agility, and the ability to create innovations (Acs and Yeung, 1999, Qian and Li, 2003). Larger companies that have greater and more complete resources than small businesses are easier to deal with changes in the company's life cycle (Miller and Friesen, 1984). This research is in accordance with the study of Baldwin et al. (2000) who found a difference in innovative capabilities in large and small companies. Large companies are more innovative than small ones, because they have easy access to funds to carry out the innovation process.

Effect of the Role of Government, Human Capital, Social Capital, Company Size, and Entrepreneurial Orientation on the Performance of SMEs in the Procurement of Government Goods and Services in the Province of Bali. The results of research and data analysis show that the role of the government has a positive and significant effect on the performance of SMEs engaged in the procurement of government goods / services in Bali Province, indicating that the role of the government can specifically improve the performance of SMEs engaged in the procurement of goods / services. The role of the government in improving the performance of SMEs in the procurement of goods / services is to provide socialization, managerial technical guidance, and increase understanding of applicable policies and regulations.

The results of this study are in accordance with Todaro (2000) which states that the importance of the role of government / public sector as outlined in the formulation of public policies as well as possible presents a series of economic, social and institutional transformations that have a positive impact on the condition of society. Because according to Kuznets as quoted by Jhingan (2000), that economic growth in a nation's economic growth can be seen from the continually increasing supply of goods.

The results of this study are different from the results of the study of Schiffer and Weder (2001) stating that government regulations often hamper SMEs in carrying out their business. This study supports the research conducted by Munizu (2010) entitled *The Effect of External and Internal Factors on the Performance of Micro and Small Enterprises (MSEs) in South Sulawesi* concluded that external factors consist of aspects of government policy, socio-cultural and economic aspects, and aspects of the role of related institutions have a positive and significant influence on the performance of micro and small enterprises. This research is not in line with Abdullah's (1999) study which found that the government's support policy for SMEs in Malaysia was ineffective with limited reach.

The results of research and data analysis show that human capital has a positive and significant effect on the performance of SMEs engaged in the procurement of government goods / services in Bali which means that if human capital increases, the performance of SMEs also increases. When viewed from the respondents' perceptions of the highest

response variable human capital is expressed in education indicators, and the respondents' perceptions are lowest on experience indicators.

The positive influence of human capital on the performance of SMEs in accordance with the opinion of Mosher (1967) which states that, the higher the formal education experienced by a person, the higher the level of knowledge and skills, and the more open attitude towards new technology. This study is also in accordance with the statement of Suhardiyono (1992) that the more non-formal education that respondents have participated in, the more they will increase their knowledge and skills.

The results are also in line with Arrow's statement in Hubbard, O'Brien, and Rafferty (2012) that the development of human capital can be done through various experiences that someone goes through. Experience becomes a learning process to master a skill. The results of this study are also in accordance with the research of Suparta (2005) which says the level of education greatly determines a person's ability in decision making, so that they could create something. Furthermore, it is said that the level of education influences its innovation, the speed of the process of adopting innovation and one's behavior. Mardikanto (1993) also states that education can cause someone to be more open and behave, easier to accept new technology. Those with higher education will be relatively quick to apply innovation, and vice versa, those with less education are rather difficult to implement this innovation quickly (Soekartawi, 1988).

The results of the research and data analysis show that social capital has a positive effect, but not significantly on the performance of SMEs engaged in the procurement of government goods / services in Bali Province so that social capital is less able to specifically improve the performance of SMEs engaged in the procurement of goods / services. In government goods / services providers reflected most dominantly by the norm indicator, followed by network indicators, the respondents' perceptions were lowest on the trust indicator. The results of this study are not in accordance with the opinion of Putnam (1993), that the existence of social capital is indeed different from other capital, such as financial capital or human capital. Fukuyama (1995) states that by relying on shared norms and values, the association between humans will produce trust which ultimately has a large and measurable economic value.

The positive influence of social capital on the performance of SMEs supports the research of Durojaiye et al (2013) conducting research to find out the effect of social capital on profit growth in the food trade business in Nigeria. The results of this study show that social capital plays a positive and significant role in increasing profits in selling makakan materials in Nigeria. Likewise, according to Tri Rahmawati and Hikmah (2010) who conducted a study of the factors that influence the performance of MSMEs in Semarang City concluded that social networks were one of the main factors besides other factors that influenced the performance of MSMEs in Semarang City.

The results of the research and data analysis show that the size of the company has a positive and significant effect on the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali, meaning that if the size of the company increases, the performance of SMEs will also increase. The company size indicators in this study are: labor, total debt, and total assets. The results of this study are in accordance with the theory presented by Acs and Yeung (1999) and Qian and Li (2003) that the limitations associated with resource support for SMEs can be compensated by the various advantages possessed by SMEs namely flexibility, agility, and ability to create innovation . This research is also in accordance with Mutchler's (1985) research in Alexander (2004). Lin (2006) and Wright et al. (2009) found that company size had a positive effect on performance. This shows that large companies are more promising good performance (Lin, 2006).

The results of the research and data analysis showed that entrepreneurial orientation had a positive and significant effect on the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali. This means that if the entrepreneurial orientation increases, the performance of SMEs also increases. The indicators of entrepreneurial orientation used are entrepreneurs who have characteristics: innovative, proactive, and risk taking. The results of this study are in accordance with that

conveyed by Suryana (2006) that entrepreneurship is called a spearhead (pioneer) to realize a sustainable and highly competitive company economic growth. Innovation capabilities are related to the perception and activity of new and unique businesses. Microactivity in business activities, the company has carried out entrepreneurial activities that will automatically encourage high performance (Weerawardena, 2003). Companies with high entrepreneurial activities mean that they are seen from the high level of enthusiasm that never goes out due to obstacles, obstacles, and challenges or facing risks. A person who takes risks can be defined as someone who is opportunity oriented in the uncertain context of decision making.

The influence of entrepreneurial orientation on the performance of SMEs engaged in the procurement of government goods / services in Bali Province means that entrepreneurial orientation is very necessary and meaningful for SMEs engaged in the procurement of government goods / services in the Province of Bali. This is in line with the expectations of Engkoswara (1999) stating that Indonesia's human life towards the year 2020 will improve and be dynamic. Through individual development it is expected that overall the community will experience "self empowering" to be more creative and innovative.

The results of this study support the research of Wolff and Pett (2006), that entrepreneurial orientation has become a very important variable for the company. Companies with a higher level of entrepreneurial characteristics have a higher level of performance and growth, because they can deal with environmental dynamics more successfully. The results of this study are in line with Covin and Slevin's (2006) research which also confirms the same relationship in both large companies and SMEs. This study supports the research of Frishammar and Horte (2007), that innovation has a positive effect on business performance. This research is also in line with the results of research conducted by Zahra and Garvis (2000), Ireland et al (2003), Wiklund and Shepherd (2005) who found that entrepreneurial orientation had a positive and significant effect on company performance.

Indirect Effects of the Government's Role, Social Capital, Human Capital, Company Size on the Performance of SMEs in the Government's Procurement of Goods / Services in the Province of Bali Through an Entrepreneurial Orientation. Statistically the results of the data study show that there are indirect effects of the role of government, social capital, human capital, the size of the company on the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali through entrepreneurial orientation. For exogenous variables the role of government, human capital, and company size the role of entrepreneurial orientation is categorized as "partial mediation", whereas for social capital variables entrepreneurial orientation is categorized as "full mediation", because previously the direct influence of social capital on SME performance was not significant. The indirect influence of the role of government, social capital, human capital, and company size on the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali through entrepreneurial orientation indicates that the role of government, social capital, human capital, and company size causes orientation entrepreneurship is increasing, further increasing entrepreneurship orientation has increased the performance of SMEs engaged in the procurement of government goods / services in Bali.

The results of this study in accordance with those conducted by Hadiyati (2011) concluded that the government's efforts to maintain the growth of MSMEs have resulted in two strategic programs, namely entrepreneurship programs and partnership programs. Companies with entrepreneurial orientation levels that are high in three dimensions innovative, proactive and risk taking make it possible to identify and utilize opportunities that arise in the corporate environment and build entrepreneurial strategies that lead to company growth (Davis et.al, 2010).

This research supports the research conducted by Usvita (2014) who in Padang City concluded that entrepreneurial orientation had a significant effect on company performance. This study does not support research conducted by Korry et al. (2013) which concluded that entrepreneurial orientation mediates insignificantly the relationship between government policy and the performance of village unit cooperatives in Bali Province.

The influence of social capital on the performance of SMEs is inseparable from the role of entrepreneurial orientation of SMEs that are engaged in the Procurement of Government Goods / Services in the Province of Bali. The results of this study indicate that with the operation of social capital well, it will enhance the entrepreneurial orientation of SMEs engaged in the Procurement of Government Goods / Services in the Province of Bali. Research by Lee et al. (2007) in leading industries in Taiwan place social capital as a variable that moderates the relationship between entrepreneurial orientation and company performance. His research results show that high social capital will strengthen the relationship between entrepreneurial orientation and performance.

The results of Ahuja's (2000) study state that social capital in the form of networks can increase innovation (as an element of entrepreneurship) that will improve performance. The network will have short-term and long-term welfare implications through processes of innovation, partnerships and new product development (Grave, 2003). Trust is also an element of social capital which has an important influence. The results of Kate and Durance's study (2008) state that social capital in the form of trust will help protect those who will increase innovation, then performance will be more effective.

The indirect influence of human capital on the performance of SMEs, means that human capital has a significant and positive effect on the performance of SMEs inseparable from the entrepreneurial orientation of SMEs engaged in the Procurement of Government Goods / Services in the Province of Bali. The results of this study indicate that with the strengthening of SME Procurement of Goods / Services human capital, it will enhance entrepreneurial orientation in SMEs, to improve the performance of SMEs engaged in the Government Procurement of Goods / Services in the Province of Bali. Increasing the knowledge and skills of employees through training activities is very important in improving company performance. Preffer (1994) and Upton (1995) state that the success of a company in facing market competition is determined by human capital, not physical capital, so that companies are encouraged to invest in various trainings to improve knowledge resources, expertise and employee capabilities better than their competitors.

Some research results explain that there is an influence between entrepreneur orientation and the success of SME businesses. This was stated by many researchers including Lee and Tsang (2001) who examined the impact of entrepreneurial orientation on "venture growth" (Growth of Sales and Profit). Steward et al (2003) also examined aspects of entrepreneurship with elements (1) achievement (2) innovation and (3) risk towards the goal orientation by comparing between entrepreneurial attitudes in the USA compared to entrepreneurial attitudes in Russia. Likewise, Vitale, Giglierano and Miles (2003) examined the effect of entrepreneurial orientation consisting of elements (1) innovating (2) acting proactively and (3) managing risk on performance or growth. Zahra and Covin (1995) suggest that the dimensions of entrepreneurial orientation are independent dimensions and have a positive effect on financial performance.

The results of the research and data analysis show that the size of the company indirectly influences the performance of SMEs through entrepreneurial orientation in SMEs engaged in the Procurement of Government Goods / Services in the Province of Bali. Large companies are considered more innovative because they have the ease of accessing funds to carry out the innovation process. Baldwin, Hanel, and Sabourin in Rahab et al. (2009) found that larger companies will be more innovative than smaller companies, because they have more ease of access to finance, can spread innovation fixed costs to larger sales volumes, benefits derived from economies of scope, and complement each other between activities research and development with other activities.

CONCLUSION

Based on quantitative and qualitative analysis, as well as the discussions conducted, it can be concluded as follows:

- Human capital is capable of significantly increasing the social capital of SMEs engaged in the procurement of government goods / services in the Province of Bali.

This shows that education and experience possessed by SMEs can increase their social capital both in terms of networks, norms and beliefs;

- The role of government, company size, human capital, and social capital directly has a positive and significant influence on the entrepreneurial orientation of SMEs engaged in the procurement of government goods / services in the Province of Bali. This means that regulation and empowerment by the government can improve entrepreneurial orientation. The same thing when having high education and experience, trusting each other, upholding good norms, and having a larger company size can increase its entrepreneurial orientation;
- The role of government, company size, human capital, and entrepreneurial orientation is positive and significant towards the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali. If the role of the government, company size, human capital and entrepreneurial orientation is getting better, then the performance of SMEs engaged in the procurement of government goods / services in Bali Province will also increase. Direct social capital has a positive effect, but not significantly on the performance of SMEs;
- There is an indirect influence of the role of the government, social capital, human capital, the size of the company on the performance of SMEs engaged in the procurement of government goods / services in the Province of Bali through entrepreneurial orientation.

SUGGESTIONS

Based on the background, it was stated earlier that the implementation of e-procurement caused UKM to procure goods / services in Bali Province to be unable to compete with outside business in Bali, so this opportunity was suggested to the Regional Government of Bali Province to always provide empowerment to SMEs procurement of goods / services not only on official forums and official government websites but also cooperating with social media such as Facebook, Instagram and other social media so that access to information on procurement of government goods / services can be widely known by the public and entrepreneurs. Accelerate the implementation of e-catalogs for local products produced by SMEs in the Province of Bali, so that they can be marketed more broadly to increase the competitiveness of local Balinese SMEs.

After analyzing the results of the study, it is known that this study has limitations that the role of government in this research is seen in terms of the role of government in the field of procurement of government goods and services. There are still other government roles, such as the role of government in general in the economic field, namely: the role of resource allocation; the role of social welfare; and the role of managing macroeconomics.

REFERENCES

1. Abdullah, S. 1999. "Analisis Hubungan Rasio-rasio Keuangan Perusahaan Manufaktur dengan Pemilihan Metoda Persediaan: Studi Kasus di Indonesia," *Jurnal Manajemen & Bisnis*, vol. 1, no.2. pp. 60-74.
2. Acs, Z. J., and B. Yeung. 1999. Conclusion, "in Small and Medium-Sized Enterprises," in the *Global Economy*. Ann Arbor: University of Michigan Press.
3. Afiatin, Tina. 2003. "Pengaruh Program Kelompok Aji dalam Peningkatan Harga Diri, Asertivitas and Pengetahuan Mengenai Napza untuk Prevensi Penyalahgunaan Napza pada Remaja". Disertasi. Yogyakarta: UGM.
4. Agus Eko Sujianto. 2001. Analisis Variabel-variabel yang Mempengaruhi Struktur Keuangan Pada Perusahaan Manufaktur yang Go Publik di Bursa Efek Jakarta. *Jurnal Ekonomi and Bisnis*. Vol 2, No 2.
5. Alexander, Ramadhany. 2004. "Analisis Faktor-Faktor Yang Mempengaruhi Penerimaan Opini Going Concern Pada Perusahaan Manufaktur Yang Mengalami

- Financial Distress di BEJ”. Semarang: Thesis Program Magister Akuntansi. Universitas Diponegoro.
6. Ancok, Djameludin. 2002. *Outbond Management Training*. Jogjakarta: UII Press.
 7. Australian Government Information Management Office (AGIMO). 2011. *Commonwealth Electronic Procurement. Implementation Strategy*. Canberra: Attorney-General's Department.
 8. Ayda, Eraydin & Bilge Armatli-Koronglu. 2005. "Innovation, Networking and New Industrial Clusters"; *Entrepreneurship & Regional Development*. Volume 7, Issue 4.
 9. Ayu, Sri Mahatma Dewi, Ayu Wirajaya. 2013. Pengaruh Struktur Modal, Profitabilitas and Ukuran Perusahaan Pada Nilai Perusahaan. *E-Jurnal Akuntansi Universitas Udayana* 4.2.
 10. Baldwin, John R. 1999, "Innovation, Training and Succes", Working Paper Series. MicroEconomic Analysis Division Canada, No. 137.
 11. Bastian, Indra. 2006. *Akuntansi Sektor Publik: Sebuah Pengantar*. Jakarta: Penerbit Erlangga.
 12. Bianchi, T. 2001." With and without co-operation: two alternative strategies in the food-processing industry in the Italian South". *Entrepreneurship & Regional Development* 13
 13. Bourdieu, Piere. 1986. *The Form of Capital: Hand Book Theory and Research in Sociology of Education*,. J.G.Richardson (edt), Wes Port, Green word Press.
 14. Chen, Jia. 2006. Development of Chinese Small and Medium-Sized Enterprises. *Journal of Small Business and Enterprise Development*, Vol. 13 No.2, pp. 140-147
 15. Chisholm, A. M., & Nielsen, K. 2009. Social capital and the resource-based view of the firm. *International Studies of Management and Organization*, 39(2), 7–32.
 16. Chowdhury. Mohammed S. 2007. Overcoming entrepreneurship development constraints: the case of Bangladesh. *Journal of Enterprising Communities: People and Places in the Global Economy*, Vol. 1 No.3, pp.240-251.
 17. Cohen & Prusak L. 2001. *Social Capital In The Creation of Human Capital*, The American Journal Of Sociology.
 18. Coleman, James S. 1988. Social Capital in the Creation of Human Capital. *The American Journal of Sociology*, Vol.94, Supplement: Organizations and Institution: Sociological and Economic Approaches to the Analysis of Social Structure, pp. S95-S120.
 19. Cooper, R., Edget, S. and Kleinschmidt, E. 2004. *Benchmarking Best NPD Practices I. Research Technology Management*.
 20. Covin, J & D. Slevin. 1989. *Strategic Management of Small Firms in Hostile & Benign Environments*. *Strategic Management Journal*.
 21. Cox, Eva. 1995. *A Truly Civil Society (Lecture 2: Raising Social Capital)*. Boyer Lectures.
 22. Croom. S.R., Brandon-Jones. A. 2007."Impact of E-procurement: experiences from implementation in the UK public sector". *Journal of Purchasing & Supply Management*. Vol. 13. Hal. 294–303.
 23. Cunningham JG. 2002. *Textbook of Veterinary Physiology*. Philadelphia (US): Saunders.
 24. Davis et al. 2010. The Influence of CEO Gender on Market Orientation and Performance in Service Small and Medium-Sized Service Business. *Small Business Management*, 48(4), 475-496.
 25. Diva, Gede. 2009. *Mengembangkan UMKM Melalui Pemberdayaan Peran Pemerintah Daerah* Bakrie School of Management: Jakarta.
 26. Drucker, Peter F. 2008. *Inovasi and Kewirausahaan Praktek and Dasar-Dasar*. Jakarta: Penerbit Erlangga.
 27. Durojaiye, AM. Yusuf S.A. Falusi A.O. and Okoruwa V O. 2013. Social Capital and Its Influence on Profitability of Foodstuff Traders in Southwestern Nigeria. *American Journal Of Social And Management Sciences*. Vol. 23, No.6.
 28. Engkoswara, 1999, *Menuju Indonesia Modern 2020*. Bandung: Yayasan Amal Keluarga.

29. Eraydin, Ayda and Bilge, Armatli-Koroğlu. 2005. Innovation, Networking and The New Industrial Clusters: The Characteristics of Networks and Local Innovation Capabilities in The Turkish Industrial Clusters. *Entrepreneurship and Regional Development*. Vol.17, 4, pp.237-266.
30. Farsi, J.Y. Rezazadeh. A. Najmabadi. A.D. 2013. Social Capital and Organizational Innovation: The Mediating Effect of Entrepreneurial Orientation. *Journal of Community Positive Practices*, XIII(2) 2013, 22-40.
31. Frishammar, J. and Horte, S. A. 2007. "The Role of Market Orientation and Entrepreneurial Orientation for New Product Development Performance in Manufacturing Firms". *Technology Analysis & Strategic Management*.
32. Fukuyama, Francis. 1995. *Trust: Kebajikan Sosial and Penciptaan Kemakmuran*. Yogyakarta: Penerbit Qalam.
33. 1999. *The End of History and the Last Man: Kemenangan Kapitalisme and Demokrasi Liberal*. Yogyakarta: Penerbit Qalam.
34. Geriya, I Wayan. 1995. *Pariwisata & Dinamika Kebudayaan Lokal, Nasional, Global*. Denpasar: Upada Sastra.
35. Ghozali, Imam. 2011. "Aplikasi Analisis Multivariate Dengan Program SPSS". Semarang: Badan Penerbit Universitas Diponegoro.
36. Guest, D.E., Michie, J, Conway, N & Sheehan, M. 2003. "Human resource management and corporate performance in the UK" dalam *British Journal of Industrial Relations*, 41
37. Hadiyati, Ernani. 2013. Kreativitas and Inovasi Berpengaruh Terhadap Kewirausahaan Usaha Kecil. *Jurnal Manajemen and Kewirausahaan*. Vol.13, NO. 1. Maret 2013.
38. Hall, Mark L. Lengnick and Cynthia A. 2003. *Human Resource Management in the Knowledge Economy*. Berret Koehler.
39. Hasbullah, Jousairi. 2006. *Social Capital: Menuju Keunggulan Budaya Manusia Indonesia*. Jakarta: MR-United Press.
40. Huang, K. P., & Wang, K. Y. 2011. The moderating effect of social capital and environmental dynamism on the link between entrepreneurial orientation and resource acquisition, *The journal of Quality and quantity*, 47(3), 1617-1628.
41. Hubbard, R. Glenn, O'Brien Anthony Patrick and Rafferty Matthew. 2012. *Macroeconomics*. New Jersey: Pearson.
42. Inayah. 2012. Peranan Modal Sosial dalam Pembangunan. *Ragam Jurnal Pengembangan Humaniora*. Vol. 12 No. 1, April 2012.
43. Ireland, R.D., Hitt, M.A., and Sirmon, D.G. 2003. A Model of Strategic Entrepreneurship: The Construct and Its Dimension, *Journal of Management*, 29 (6), 963-989.
44. Jhingan, M.L. 2007. *Ekonomi Pembangunan and Perencanaan*. Jakarta: Raja Grafindo Persada.
45. Kaasa, A. 2009. Effects of different dimensions of social capital on innovative activity, Evidence from Europe at the regional level. *Technovation*, 29, 218–233.
46. Kate, W. and Durrance, J.C. 2008. *Social Networks and Social Capital: Rethinking Theory in Community Informatics*. *The Journal of Community Informatics*. Vol. 4, No. 3. Khaira, Amalia Fachrudin. 2011. Analisis Pengaruh Struktur Modal, Ukuran Perusahaan, and Agency Cost Terhadap Kinerja Perusahaan. *Jurnal Akuntansi and Keuangan* Vol.13 Universitas Sumatra Utara.
47. Keats, Barbara W. and Hitt, Michael A. 1988. A Causal Model of Linkages Among Environmental Dimensions, Macro-Organizational Characteristics, and Performance, *Academy of Management Journal*, 31, 570-596.
48. Keputusan Presiden Tahun 80 tahun 2003 tentang Pengadaan Barang Jasa Pemerintah.
49. Korry, I Nyoman Sugawa, et al. 2013. The Role of Entrepreneurial Orientation in Mediating the Effect of Organizational Culture and Government Policy toward Business Performance (Case Study: Koperasi Unit Desa in Bali Province). *International Journal of Business and Commerce*. Vol. 2, No.12: pp.29-42. ISSN: 2225-2436.

50. Kozlowski, S. W. J., & Klein, K. J. 2000. "A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes" .K. J. Klein & S. W. J. Kozlowski (Eds.). *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*. San Francisco, CA: Jossey-Bass.
51. Lee, D.Y and Tsang, EW.K. 2001. The Effect of Entrepreneurial Personality, Background and Network Activities on Venture Growth, *Journal of Management Studies*. Vol .38.4: pp 583-602.
52. Lumpkin, G. T. and Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*.
53. Luthans, F. 2005. *Organizational Behavior*. New York: McGraw-hill.
54. Mardikanto, Totok. 1993. *Penyuluhan Pembangunan Pertanian*. Surakarta: Sebelas Maret University Press.
55. Miller, D. and P. Friesen. 1982. "Innovation in Conservative and Entrepreneurial Firms: Two Models of Strategic Momentum." *Strategic Management Journal* Vol. 3
56. 1984. A Longitudinal Study of the Corporate Life Cycle. *Management Science* 30.
57. Miles, M.P; Joe Giglierano and rob Vitale. 2003. Entrepreneurial Orientation, Market Orientation, and Performance in Established and startup Firms. Working Paper
58. Morris, Michael H & Donald F. Kuratko. 2002. *Corporate Entrepreneurship*. United States of Amerika: South Western a division of Thomson Learning.
59. Mosher, A.T. 1965. *Menggerakkan and Membangun Pertanian*. C.V. Yasaguna.
60. Munizu, Musran. 2010. Pengaruh Faktor-Faktor Eksternal and Internal Terhadap Kinerja Usaha Mikro and Kecil (UMK) di Sulawesi Selatan. *Jurnal Manajemen and Kewirausahaan*, Vol.12, No. 1.
61. Mustafa. K.2010. *Pengadaan Barang and Jasa di Pemerintahan (Bagian IV: E-Procurement – Apa and Bagaimana)*. (cited 10 Desember 2015). Available from: <http://www.khalidmustafa.info>.
62. Mutchler, J. 1984. "Auditors Perceptions of the Going Concern Opinion Decision." *Auditing: Journal Practise and Theory*.
63. Naskah Akademik RUU pengadaan Barang/Jasa Negara Tahun 2015
64. Naudé, W.A., and M. Matthee. 2007. 'The Geographical Location of Manufacturing Exporters in South Africa', WIDER Research Paper 2007/09, Helsinki: UNU-WIDER.
65. Neely, A., Adams, C., & Kennerley, M. 2002. *The Performance Prism: The Scorecard for Measuring and Managing Business Success*. London: Prentice Hall.
66. Nonaka, I., and Takeuchi, H. 1995. *The Knowledge-Creating Company*. New York: Oxford University Press
67. Nurlaila, 2010. *Manajemen Sumber Daya Manusia I*. Penerbit LepKhair
68. Ozsomer, A, Calantone, RJ, & Di Benedetto, A. 1997. What makes firms more innovative? A look at organizational and environmental factors. *Journal of Business & Industrial Marketing*.
69. Peraturan Kepala Lembaga Kebijakan Pengadaan Barang/Jasa Pemerintah (LKPP) nomor 1 tahun 2011 tentang Electronic Tendering.
70. Peraturan Presiden Nomor 16 Tahun 2018 Tentang Pengadaan Barang/Jasa Pemerintah.
71. Piazza-Georgi, B. 2002. The Role of Human and Social Capital in Growth: Extending Our Understanding. *Cambridge Journal of Economics*. Vol. 26 (4). p 461-79.
72. Preffer, J. 1994. *Competitive advantage through people*. Boston: Harvard Business School Press.
73. Putnam R D. 1993. "The Prosperous Community: Social Capital and Public Life. *The American Prospect*, Vol 13, pp 35-42.
74. Qian, Gongming and Li, Lee.2003. Profitability of small and medium-sized Enterprises in high-tech industries: the Case of the biotechnology industry. *Strategic Management Journal Strat. Mgmt.J*.
75. Rahab, Istiqomah, and Dian Purnomojati. 2009. *Permodelan mengenai Peran Product Improvement and Process Improvement terhadap Kinerja UKM*. Laporan Penelitian. Universitas Jenderal Soedirman. Purwokerto.

76. Reswanda. 2011. Pengaruh Orientasi Kewirausahaan terhadap Pembelajaran Organisasi, Keunggulan Daya Saing Berkelanjutan and Kinerja Usaha pada UMKM Kerajinan Kulit Berorientasi Ekspor di Sidoarjo. *Jurnal Disertasi. Universitas Airlangga.*
77. Robinson, A. G. and Stern, S.2007. *Corporate Creativity.* SanFrancisco: Berrett-Koehler.
78. Schiffer, M. & Weder, B. 2001. *Firm Size and the Business Environment: Worldwide Survey Results.* Washington, DC: The World Bank.
79. Schmidt, F.L., Hunter, J.E., McKenzie, R.C. & Muldrow, T.W. 1979. "Impact of valid selection procedures on work-force productivity". *Journal of Applied Psychology* 64.
80. Simamora. Yohanes Sogar. 2009. *Hukum Perjanjian; Prinsip Hukum Kontrak Pengadaan Barang and Jasa Pemerintah.* Yogyakarta: LaksBang Pressindo.
81. Slater, S.F. & Narver, 1995, *Marketing Orientation and Organizational Learning.* *Journal of Marketing.*
82. Suhardiyono, L. 1992. *Penyuluhan: Petunjuk Bagi Penyuluh Pertanian.* Jakarta: Erlangga.
83. Sumarni. 2013. *Intervensi Pemerintah Antara Kebutuhan and Penolakan di Bidang Ekonomi.* *Economica. Jurnal Program Studi Pendidikan Ekonomi.* Vol. 1 No. 2, April 2013.
84. Suparta, N. 2005. *Pendekatan Holistik Membangun Agribisnis.* Denpasar: Bali Media Adhikarsa.
85. Tri Ratnawati, Andalan and Hikmah. 2010. *Faktor-Faktor Yang Mempengaruhi Kinerja UKM (Studi Kasus UKM DI Kabupaten and Kota Semarang).* *Serat Acitya-Jurnal Ilmiah UNTAG Semarang,* Vol. 7, No. 9.
86. *Undang-Undang Nomer 8 tahun 2008 tentang Usaha Mikro, Kecil and Menengah.*
87. *Undang-Undang Republik Indonesia Nomor 20 Tahun 2008 Tentang Usaha Mikro, Kecil and Menengah.*
88. Upton, D.M. 1995. "What really makes factories flexible?". *Harvard Business Review* 73.
89. Usvita, Mega. 2014. *Pengaruh Orientasi Kewirausahaan and Orientasi Pasar Terhadap Kinerja Perusahaan Melalui Keunggulan Bersaing Sebagai Variabel Intervening (Survey Pada UKM Pangan Dinas Perindagtamben Kota Padang).* *e-Journal Apresiasi Ekonomi.* (3)1. Januari 2015: 31-37.
90. Venkatraman and Ramanujam. 1986. *Measurement of Bussines Perfomance in Strategy Research: A Comparison of Approaches.* *Academy of Management Review,* Vol 1.
91. Vitale R, Giglierano J, and Miles M. 2003." *Entrepreneurial Orientation, Market Orientation, and Performance in Established and Startup Firms.* <http://www.uic.edu/cba/ies/2003papers>.
92. Wahyuni, Tri Endang. 2008. *Upaya Menumbuhkembangkan Kewirausahaan di Kalangan Mahasiswa.* AKMENIKA UPY. Volume 2.
93. Weerawardena, Jay. 2003. *Exploring The Role of Market Learning Capability in Competitive Strategy.* *European Journal of Marketing,* Vol.37,p.407-429.
94. Widodo, S. 2009. *Proses transformasi pertanian and perubahan sosial pada masyarakat Samin di Bojonegoro.* *EMBRYO.* Vol 6(1): 57-66.
95. Wiklund, J. and Shepherd, D. 2005. *Entrepreneurial Orientation and Small Business Performance: A Configurational Approach.* *Journal of Business Venturin.* 20, 71-91.
96. Wimba, I Gusti Ayu. 2015. *Pengaruh Modal Sosial Terhadap Orientasi Kewirausahaan and Biaya Transaksi Untuk Meningkatkan Kinerja Usaha Pada UKM Kerajinan Kayu Di Provinsi Bali.* *Disertasi.* Denpasar:Universitas Udayana.
97. Wolff, James and Pett, Timothy L. 2006. *Small-Firm Performance: Modeling the Role of Product and Process Improvements.* *Journal of Small Business Management.* Vol. 44, Issue 2, pp. 268-284.
98. *World Trade Organization. 2005. Government Procurement: The Plurilateral Agreement Overview of the Agreement of Government Procurement.*

99. World Bank. 2003. Electronic Government Procurement (e-GP). World Bank Draft Strategy.
100. Zaenal, Abdul. 2012. UMKM Sebagai tulang Punggung Perekonomian Nasional. Bandung: Alfabeta.
101. Zahra, S. A., and Garvis, D. M. 2000. Entrepreneurship and firm performance: The moderating effect of international environmental hostility,. *Journal of Business Venturing*, 15(5), pp. 469-492.
102. 2000, Manufacturing Strategy and New Venture Performance: A Comparison of Independent and Corporate Ventures in the Biotechnology Industry. *The Journal of High Technology Management Research*.
103. 2002, "Absorptive Capacity: A Review, Reconceptualization, and Extension". *Academy of Management Review*, Vol. 27.

DOI 10.18551/rjoas.2019-08.15

INFLUENCE OF SERVICE QUALITY AND CUSTOMER SATISFACTION ON CUSTOMER LOYALTY IN RESTAURANTS OF THE TANGERANG AREA

Karani Laila Maisya, Syah Tantri Yanuar Rahmat*, Anindita Rina

Faculty of Economics and Business, University of Esa Unggul, Indonesia

*E-mail: tantri.yanuar@esaunggul.ac.id

ABSTRACT

In recent decades the quality of a service to be one of the most important factors that contribute to consumer satisfaction. But it is not certain whether the good service quality is also capable of being the most important factors on consumer loyalty. This article presents an analysis of the relationship between a restaurant service quality on customer satisfaction and customer loyalty. This study aims to determine whether the quality of service and customer satisfaction has a significant influence on customer loyalty and to determine which variables are the most dominant has a significant influence on customer loyalty. Data were analyzed using Structural Equation Model (SEM). The results showed that service quality affects customer satisfaction, customer satisfaction affects customer loyalty, but the quality of service does not affect customer loyalty.

KEY WORDS

Service quality, customer satisfaction, customer loyalty, public service.

The more advanced economies, the growing market and market segmentation has now dramatically changed consumer buying interest with the many kinds of products services. Consumers have had greater expectations and more challenging than ever. Consumers now demand high quality products and the price can be reached by them. Companies must be able to seize the consumer of the hands of competitors by providing more value. The dimensions of a certain quality that can contribute substantially need to be identified (Veloso et al., 2014) Currently, provide quality of service is seen as a way to stay competitive in a market where global competition and technology has changed the products and services into commodities (Nadiri and Gunay, 2013) in (Salome and Victor, 2014), Many researchers have examined the relationship between perceived service quality and customer satisfaction in the service industry (Cronin and Taylor, 1992; Zaibaf et al., 2012; Zhang and Prybutok, 2005) (Veloso et al., 2018), Confirming that service quality is a significant antecedent of satisfaction. The key to customer satisfaction lies in the identification and how to anticipate consumer needs and especially to be able to satisfy them. Companies are able to understand and satisfy the needs of consumers quickly, generating more profit than companies that fail to understand and satisfy them (Dominici and Guzzo, 2010) in (Veloso et al., 2017), Sari (2015) stating customer satisfaction is a situation in which cognitive buyer in regard to proportionality or mismatch between the results obtained compared with the sacrifices made. Furthermore, it enhances the value of the benefits and the level of customer service loyalty to the organization's finances. Many empirical evidence can be found in the literature around the world that explore the relationship between service quality, perceived value, loyalty and customer service (Parasuraman and Grewal, 2000; Ogunnaike and Olalekei 2010; Kaur and Kiran, 2015; Hapsari et al., 2017) in (Sabah, Al, and Turan, 2017)

Loyalty is an important step in ensuring that consumers do something beneficial for the company, either through purchase or by word of mouth (WOM). It is believed that satisfaction is a consequence of the quality of service, and guarantee, increasing the possibility of involving consumers and loyalty. Several studies have shown that there is a positive relationship between service quality and customer loyalty (Yuen and Chan, 2010) in (Veloso et al., 2018), Consumers who are loyal to his purchase decision no longer consider the factors that influence in determining the choice of price levels, range, quality, and other attributes, because it has been ingrained in him that the products or rservice purchased in

line with expectations and is able to meet the needs. Consumers who are loyal or faithful is someone who does the repeated use of the same company, notify all other potential customers, word of mouth, and became an antidote to attack from competitors (Sari, 2015).

In this context, the main aim of this article is to propose a methodology that allows for examination of the effect of the antecedents and consequences of service quality on customer satisfaction, customer satisfaction influence on consumer loyalty as well as the final impact of service quality on customer loyalty to the restaurant.

HYPOTHESIS DEVELOPMENT

Preliminary studies on the quality of service is defined as a measure of the service that provides the needs of consumers, and involves a comparison between consumer expectations with their perceptions of the actual service performance (Parasuraman et al., 1985; Parasuraman et al., 1988) in (Veloso et al., 2017), Quality of service has taken a leading role in public and private institutions, as an indispensable requirement for customer satisfaction (Veloso et al., 2014), According Nadiri and Hussain (2005) Veloso et al. (2014) service quality increases customer satisfaction, influence the repurchase and encourage consumers to give recommendations.

Consumer satisfaction is derived from the comparison process (Oliver, 1993) in (Yi-Chin Liu et al., 2008), The comparison that is what consumers created between their expectations before they receive the services and the perception that they form after they receive services. It is a thorough assessment made consumers on the quality of service. This, is a subjective assessment which resulted in consumer thinking after they receive services (Yi-Chin Liu et al., 2008), If the quality of service together with the hope of pre-consumer services, the service had previously perceived quality (Yi-Chin Liu et al., 2008), Similar to Kotler (1996; 1999) Yi-Chin Liu et al. (2008) He explained that consumer perceptions of layanan highly dependent on the quality of service. Services are intangible / cannot be seen and without ownership. This could be a sub-product of a product, can also be the product itself.

It could be said that customer satisfaction is a reflection of the quality of service. Based on the research results Cornin and Taylor (1992) and Kolter (1991) in Yi-Chin Liu et al. (2008) customer satisfaction occurs when both are equal, or when the quality of service exceeds customer satisfaction, Ruyter (1997) in Yi-Chin Liu et al. (2008) also said the same thing, namely the quality of service is a major factor in the effect of customer satisfaction. From the results of the literature on hypotheses that can be submitted:

H1: good service quality will increase customer satisfaction.

Customer loyalty is defined as a permanent fidelity (or long-term interest) to a product or service based on previous experiences and views with a diverse array of establishment, not just one-dimensional (Allen and Meyer, 1990) in (Lin, Jao- Chuan et al., 2008), In Yi-Chin Liu et al. (2008) noted that previous studies have shown that it takes costs 5 times more likely to generate new customers than retain old customers. Customer loyalty can be measured through their desire to buy back, satisfaction and tolerance against price fluctuations.

Prus and Brandt (1995) in Yi-Chin Liu et al (2008) mentioned that customer satisfaction leads to customer loyalty. Several other studies which suggested a link between customer satisfaction and customer loyalty is Kao (1986) and Anderson and Sullivan (1990) in Yi-Chin Liu et al. (2008) stated that customer satisfaction has a positive relationship with repeat purchase behavior. Consumer loyalty is directly influenced by consumer satisfaction (Binter, 1990; Cronin and Taylor; 1992; Heskett et al., 1994; Drack, 1998) (Yi-Chin Liu et al., 2008), Goodman et al. (1989) in Yi-Chin Liu et al. (2008) shows that customer satisfaction occurs when consumer needs are met and exceeded.

Customer satisfaction and customer loyalty is always related to one another, but they do not always show a positive relationship (Yi-Chin Liu et al., 2008), It is mentioned by Bowen and Chen (2001) in Yi-Chin Liu et al. (2008) that customer satisfaction and customer loyalty are two parts of a concept. They are not directly related. Fay (1994) in Yi-Chin Liu et

al. (2008) proving that despite its good quality can generate high satisfaction, high satisfaction not directly create loyalty.

Based on the reference of previous studies, we would like to know whether there is a relationship of customer satisfaction and customer loyalty my place to do research. From the above literature, the hypothesis can be proposed, namely:

H2: Consumer satisfaction will increase consumer loyalty.

To some extent, the same service quality to customer satisfaction as a result of comparing both consumer expectations and from actual experience that experienced by consumers (Zeithaml et al., 1990) in (Yi-Chin Liu et al., 2008).

According to Bolton and Drew (1991) in Yi-Chin Liu et al. (2008) customer satisfaction is the perception that consumers have when they receive services. This will affect the quality of service, and behavioral intention to re-purchase the service. The results of the research and Lijander Strandvik (1994) in Yi-Chin Liu et al. (2008) also mentioned that the quality of service determining customer satisfaction. Consumer satisfaction is directly influencing the decision to buy back the goods / services. Based on the results of previous studies above, indicate that the quality of service and customer loyalty have a correlation. It can be said that high consumer satisfaction will increase consumer loyalty. From the above literature, the hypothesis can be proposed, namely:

H3: high consumer satisfaction will increase consumer loyalty.



Figure 1 – Research model

METHODS OF RESEARCH

This research was conducted on consumers of restaurant in Tangerang. Aspects studied are the quality of service, satisfaction and loyalty. The study was conducted using a survey method. This is a descriptive study. Data was collected by questionnaire spread throughout existing customers in the restaurant. Methods of data analysis in this study using Structural Equation Modeling (SEM). Hair, Anderson, Tatham and Black (1995) in (Lin, Jao-Chuan et al. (2008) must be at least 5 times the amount of the questionnaires, so in this study the number of questionnaires used operationalization of thirty-three, so that samples taken in this study a number of 125 (25x5) of respondents, with three variables: quality of service, customer satisfaction and customer loyalty.

In this study, there are two exogenous variables, namely the quality of service, customer satisfaction and an endogenous variable that consumer loyalty. Measurement of service quality variables using the theory of Parasuraman et al. (1988) in (Ghotbabadi et al., 2015), Measurement variables using the theory of consumer satisfaction (Crosby, et al., 1990; Kim and Cha, 2002) (Kulsum and Shah, 2017) and the measurement of customer loyalty variables by using the theory of (Lin and Ding, 2006) in (Astuti, Fitri Budi, 2017), This study using confirmatory factor analysis, to test the validity by looking at the value of Kaiser-Msyer-Olkin measure of sampling (KMO) and measures of sampling adequacy (MSA).

In this test the value obtained must be greater than 0.500, which means that the factor analysis appropriate or suitable for use, and can be processed further. Product quality scale consists of 12 questions and all valid because the value (MSA > 0.500), consumer satisfaction scale consists of 4 questions and all valid (MSA > 0.500). While consumer loyalty scale consists of nine questions and all valid (MSA > 0.500). Test reliability with Cronbach alpha values > 0.5, which means reliable.

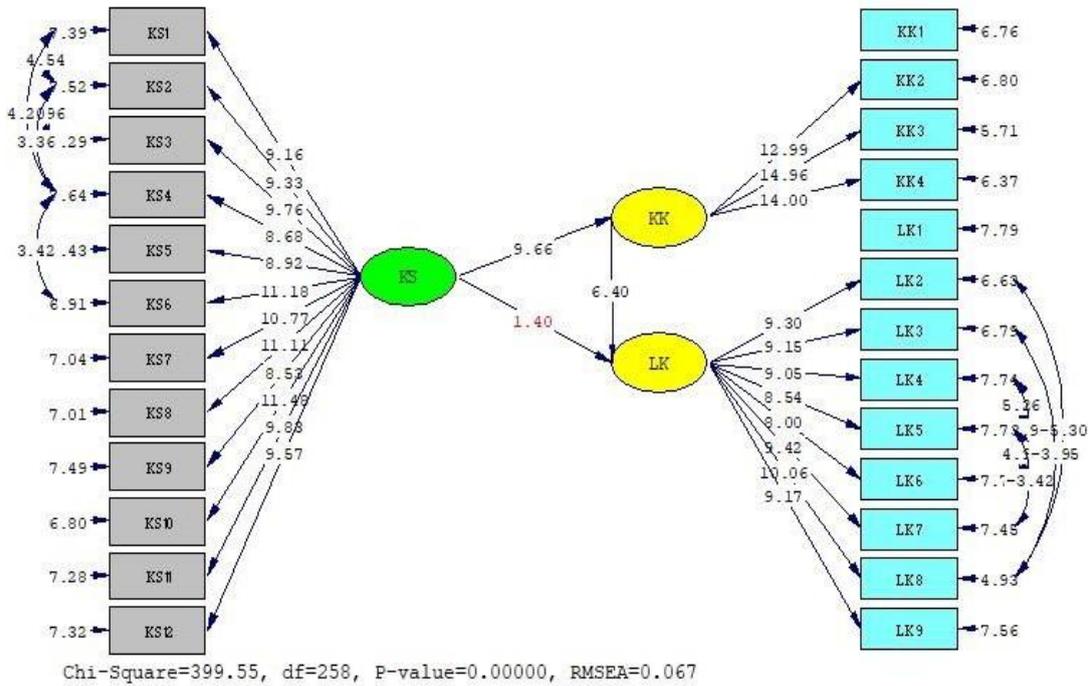


Figure 2 – Path Diagram t-value

Analysis of all test almost showed a good match, include: Chi Square, RMSEA, ECVI, AIC, CAIC, and Fit Index. There results in the form of marginal fit of Critical N and Goodness of Fit. Furthermore, this study resulted in a path diagram (Figure 2).

Table 2 – Hypothesis Testing Research Model

Hypothesis	Statement hypothesis	T-Value	Information
H1	Good quality services will create customer satisfaction	9.66	The data support the hypothesis
H2	Customer satisfaction will create consumer loyalty	6,40	The data support the hypothesis
H3	Good quality of service will be creating customer loyalty	1.40	The data do not support the hypothesis

DISCUSSION OF RESULTS

The first hypothesis testing (H1), found the analysis results support the hypothesis H1 that is good quality services create customer satisfaction. From the results of this test showed that service quality affects customer satisfaction at the restaurant. Improved quality of service will affect the level of customer satisfaction. Therefore, in theory, satisfaction is influenced by the quality of service (Lin, Jao-Chuan et al., 2008), According to Gilang Aji Son (2017) cited in Tjiptono (2000: 27-28) have already identified five dimensions of service quality, namely: Direct evidence (tangibles), reliability (reliability), responsiveness (responsiveness), assurance (assurance) and attention (empathy). The fifth of these factors may be of the perception of satisfaction with a service. This is in accordance with the research-research previously outlined in the development hypothesis concluded that service quality affects customer satisfaction products.

In the second hypothesis testing results (H2), found the analysis results support the hypothesis H2 that customer satisfaction will create customer loyalty. Consumer satisfaction has a positive influence on consumer behavior in order to reuse or recommend the service at the restaurant to others. This shows that customer satisfaction which include a statement after the purchase or receive the maximum services, consumers are satisfied with the quality service and satisfied with the performance of employees, so that the effect on consumer loyalty. The results are consistent with research by Binter (1990) ; Cronin and Taylor (1992) ; Heskett et al. (1994) ; Drack (1998) Yi-Chin Liu et al. (2008) stating that consumer loyalty is directly influenced by consumer satisfaction.

In the third hypothesis testing results (H3), found the results of the analysis do not support the hypothesis H3 where the results obtained from this study. Although based on previous research the relationship between service quality and loyalty of consumers, in fact is not the case on the results of the present study. Factors that cause this does not correlate could be due to the limited number of correspondents used. Another factor that makes the negative results of this hypothesis is the possibility of consumers who do not pay much attention to the quality of service, although the influential consumer satisfaction with their loyalty but their loyalty is not directly related to service quality.

CONCLUSION AND RECOMMENDATIONS

The results can be concluded from this study: (1) there is the influence of service quality on customer satisfaction at the restaurant, it can be said good quality services will create high customer satisfaction; (2) there is the influence of customer satisfaction on consumer loyalty restaurant, it can be said that high customer satisfaction can create customer loyalty; (3) the quality of the service has no direct effect on consumer loyalty to a restaurant, it can be said that good quality services are not necessarily affect customer loyalty.

Limitations of the study refer to some weaknesses in this study. Some of the limitations contained in this research Limitations of this study include: (1) need to be developed more other variables outside variables that have been used in this study, (2) other than that more research is needed to include various aspects of the service in foodservice due to the trend of new services (3) there is the possibility of the respondents had not filled with real or just fill based on ideal conditions expected and not a condition exactly is going on, (4) the need for variations of respondents not only from within the city, but also from other cities.

The development of future research may add other variables that can affect the quality of service and customer loyalty. Subsequent research can be done on the object of research on other products in order to obtain results more objectively with variables more certainly.

REFERENCES

1. Astuti, Fitri Budi, TYRS (2017). Determinants of Patient Loyalty in West Jakarta Government Hospital, Obstetry and Gynecology Clinic. *International Journal of Economics, Commerce and Management United Kingdom*, 6, 714-727.
2. Claudia Miranda Veloso, Daniel Magueta, Humberto Ribeiro, SRA (2018). The Links Between Service Quality, Brand Image, Customer Satisfaction And Loyalty In The Retail Industry. 28th International Scientific Conference on Economic and Social Development - Paris, 19-20 April 2018, 19-20.
3. Claudia Miranda Veloso, Humberto Ribeiro, Sandra Raquel Alves, POF (2014). Determinants of Customer Satisfaction and Loyalty In. 22nd International Scientific Conference on Economic and Social Development - "Legal Challenges Of Modern World" Determinants, 2 (5), 67-83.
4. Claudia Miranda Veloso, DM, Fernandes, PO, & Ribeiro, HR (2017). The Effects Of Customer Satisfaction, Service Quality And Perceived Value On Behavioral Intentions In Retail Industry. 23rd International Scientific Conference On Economic And Social Development - Madrid, 15 to 16 September 2017 (September), 15-16.
5. Ghotbabadi, AR, Feiz, S., & Baharun, R. (2015). Service Quality Measurements: A Review. *International Journal of Academic Research in Business And Social Sciences* February 2015, Vol.5, No.2 ISSN: 2222-6990, (August).
6. Gilang Aji Putra, AE (2017). Influence of Service Quality Customer Satisfaction at Jaguar Fitnes Sidoarjo. *Jem17 Journal of Economics*, Page 381-394 Volume 2, Number 2, November 2017 Influence, 2.
7. Kulsum, U., Yanuar, T., & Shah, R. (2017). The Effect Of Service Quality On Loyalty With Mediation Of Patient Satisfaction. *International Journal Of Business And Management Invention*, 6 (3), 41-50.

8. Lin, Jao-Chuan, Chair: Dr. M. Brian Wallace, Daphne, A. (2008). Service Quality.
9. Of The Ocean Sports Clubs And Its Impact On Customer Satisfaction And Customer Loyalty. Umi Mircoform Proquest Llc.
10. Sabah, H., Al, A., & Turan, A. (2017). The mediating Role of Perceived Value on the Relationship between Service Quality and Customer Service Loyalty: An Explanatory Study For Iraqi Private Banking Sector. *Global Business and Management Research: An International Journal*, 9 (4), 37-67.
11. Sari, DAE (2015). Effect of Service Quality and Customer Satisfaction on Customer Loyalty (Case Study at Consumer Ud. Supreme Chicken in Boyolali) Manuscript Publication. Thesis Accounting Studies Program Faculty of Economics and Business Universitas Muhammadiyah Surakarta.
12. Yi-Chin Liu, Dr. Enrico Esposito, Dpahne, A. (2008). An analysis Service Quality, Customer Satisfaction and Customer Loyalty of Commercial Swim Clubs in Taiwan. Umi Mircoform Proquest Llc.

DOI 10.18551/rjoas.2019-08.16

IS DELAY SELLING SYSTEM GOOD FOR INDONESIA'S AGRIBUSINESS MANAGEMENT?

Pariasa Imaniar Ilmi*, Hardana Andrean Eka, Koestiono Djoko

Faculty of Agriculture, University of Brawijaya, Malang, Indonesia

*E-mail: pariasa_17@yahoo.com

ABSTRACT

Delay selling practice is the one of strategys to solve price fluctuation for agricultural commodity in harvest time. It's still become a problem for farmers even the goverment already have many program to solved that issued. One of the efforts to reduce price fluctuation and oversupply of agricultural yields in harvest time is by developing delay selling system model referring to specific local condition. This Study were to describe the implementation of delay selling activity conducted by farmers, and analyze the impact of delay selling implementation on agribusiness development with descriptive and quantitative method. The result shows that delay selling activityin rice farming business gives more revenue compared to non-delay selling activity. Although the cost of delay selling is higher than those who do not implement delay selling activity, the implementation of delay selling activity gives more benefits by comparing the difference of selling price of rice in each kilogram.

KEY WORDS

Delay selling activity, Agribusiness, development, farmers.

According to Ashari (2010), the phenomenon of falling prices for agricultural commodity in harvest time has already become a serious problem for farmers and still cannot be solved. It clearly illustrates that farmers do not have power in facing price fluctuation either on food commodity, horticulture, or plantations. Price fluctuation can be engendered by ample supply and demand. When supply is getting abundant, the price is getting lower and vice versa (*ceteris paribus*). Abundant and inadequate supplies are engendered by harvest time, and high crop failures because of pest attacks and climate factors (Muharlis, 2007). Based on Food Security Service (2014), one of the efforts to reduce price fluctuation and oversupply of agricultural yields in harvest time is by developing delay selling system model referring to specific local condition.

According to Ashari (2010), the phenomenon of falling prices for agricultural commodity in harvest time has already become a serious problem for farmers and still cannot be solved. It clearly illustrates that farmers do not have power in facing price fluctuation either on food commodity, horticulture, or plantations. Price fluctuation can be engendered by ample supply and demand. When supply is getting abundant, the price is getting lower and vice versa (*ceteris paribus*). Abundant and inadequate supplies are engendered by harvest time, and high crop failures because of pest attacks and climate factors (Muharlis, 2007). Based on Food Security Service (2014), one of the efforts to reduce price fluctuation and oversupply of agricultural yields in harvest time is by developing delay selling system model referring to specific local condition.

The development of delay selling system model in the central food production is intended to strengthen the capitalization of farmers group which still becomes a big problem in food commodity marketing. By implementing this activity, the bargaining position and selling price of farmers' products will hopefully increase. Thus, the target to improve farmers' income and regional food security can be realized. This implementation of delay selling system will prioritize farmers through several approaches on farmers groups, e.g. human resources empowerment, and management and capitalization competencies.

METHODS OF RESEARCH

The research site was in Tanggul subdistrict, Jember regency of East Java. The research site was chosen based on the data of paddy production centre in Indonesia in which East Java is one of the greatest paddy production centres in Indonesia. According to BPS (2011), East Java is the second place of paddy production after West Java. East Java is one of national rice needs supports. The research was started from April to November 2017.

RESULTS AND DISCUSSION

Delay selling activity in Selodakon village was implemented by Gapoktan Mutiara Tani. This kind of activity was supported by grant program from East Java Province. The grant program which was given to Gapoktan Mutiara Tani was Lembaga Distribusi Pangan Masyarakat (LDPM) program. Gapoktan had two divisions at the beginning of its formation; they were breeding and post-harvest business division including grain forwarding up to marketing distribution. Gapoktan Mutiara Tani obtained LDPM's grant by competing with other gapoktan surrounding Jember Regency in Food Security Service of Jember Regency.

LDPM program has become one of government policy program in achieving food security. This program is held in farmer level which obligates Gapoktan to conduct two activities as community food reserve and as distributor or marketing division, especially in rice commodity. The implementation of this program was merged in which, at the beginning, marketing activity became part of post-harvest business division, then, it becomes an independent marketing business unit. Yet, the activity of community food reserve is still operating in accordance with the term and conditions of the program. LDPM program is intended to empower Gapoktan institution in order to be able to perform food distribution activity and food reserve provision, as well as to improve Gapoktan's ability and its managed business units in fostering food reserve and existing capital.

In 2016, there were 5 (five) divisions or business units, such as Rice Milling Unit (RMU), Distribution (Agricultural Product Marketing), Food Reserve, Agricultural Breeding, and Agribusiness Micro Finance Institution. One of business units performed based on delay selling implementation is Rice Milling Unit (RMU).

Rice Milling Unit (RMU) has a role in post-harvest activity of rice commodity. The activities in RMU or agricultural yield processes are processing from grain until packaging. In addition, this unit also provides grain storage or grain delay selling. The required grain is dried and ground grain. Dried grain has maximum moisture content 14%, maximum dirt / vacuum content 3%, green grain / maximum calcify 5%, maximum yellow / damaged grains 3%, and maximum red grains 3%.

In operating grain forwarding, farmers technically bring the dried and ground grains to be forwarded to RMU based on farmers' needs. This unit also provides the facility of rice drying. The capacity of rice grinding is 1 ton per hour. In addition, Rice Milling Unit also do packaging in 25 kilograms weight. Rice Milling Unit or RMU do both grinding and storing for farmers who implement delay selling. Partial storage was applied in order farmers feel more safe and flexible as they want to sell or take their grain. Storage or delay selling rice was done in this unit. The storage was done if farmers store their grain with the predetermined quantity. The storage was applied to delay the selling because of low selling price. Farmers implement delay selling until the selling price is getting higher. Farmers store their grain in primary warehouse located at southern village hall. Its capacity reaches 10 tons.

Revenue earned from farming business affects high or low farmers' income from conducting rice farming business. Income earned by farmers is calculated from the difference between total revenue and total cost production. Thus, the income earned by respondents can be known from revenue and total cost. The average revenue earned by farmer in one planting period is shown in table 1.

The result of income analysis showed that farmers who implement delay selling have higher income or profit than those who do not implement delay selling. Delay selling actors earned an income Rp. 14.378.020 in average, while non-delay selling actors earned an

income Rp. 9.979.000. The difference income was caused by a difference total revenue earned between delay selling and non-delay selling actors.

Table 1 – Revenue of Rice Farming

No	Component	Average of Rice Farming Revenue	
		Delay Selling (Rp)	Non Delay Selling (Rp)
1	Average of Revenue	23.142.474	17.196.309
2	Average of Total Cost	8.764.454	7.217.309
	Average of Income	14.378.020	9.979.000

Source: Primary data, 2017.

Total revenue earned by delay selling actors reached Rp. 23.142.474 with selling price Rp. 5.520 per kilogram. While, non-delay selling actors earned Rp. 17.196.309 with selling price Rp. 3.500 per kilogram. Although the cost of delay selling actors is higher than those who do not implement delay selling activity, the implementation of delay selling activity gives more benefits than non-delay selling by comparing the difference of selling price of rice per kilogram.

CONCLUSION AND SUGGESTIONS

The implementation of delay selling activity in rice farming business was conducted by Rice Milling Unit (RMU) managed by GapoktanMutiaraTani. This unit provides mill and storage for farmers who want to delay their selling. Rice storage can be done partially so that farmers feel safe and flexible when they want to sell or take their grains. Furthermore, it is supported by warehouse facility with the capacity reaching 10 tons.

Agribusiness development in rice farming business with delay selling activity gives more benefits compared to non-delay selling activity. Regarding total cost, delay selling actors have higher cost than those non-delays selling but the difference of rice selling price per kilogram makes delay selling actors obtain more profit than those non-delays selling. Agribusiness development was also conducted by farming Business Corporation in which the farmers (i.e. farmers group MutiaraTani) in Selodakon Village runs it. As a start, pilot project with 10 hectare rice field was applied with irrigation technique starting from breeding to post-harvest.

As supporting facility, the capacity of grain storage in Gapoktan warehouse can be enlarged by expanding storage place and area of grain drying to accommodate the needs of seven farmer groups in order to participate in delay selling activity.

The government can support the sustainable of this program especially for marketing aspect by cooperating GapoktanMutiaraTani with Bulog institution in Jember district.

REFERENCES

1. Agriculture Research and Development Berau. (2005). Sugar Cane in Indonesia. Agriculture Berau. Jakarta.
2. Ashari. 2010. Prospect of Warehouse Receipt System As an Alternative to Agricultural Sector Financing. Bogor: Center for Socio-Economic and Agricultural Policy, Ministry of Agriculture.
3. Ashari. 2012. Potential and Constraints of Warehouse Receipt Systems to Support Agricultural Business Financing in Indonesia. Bogor: Center for Socio-Economic and Agricultural Policy, Ministry of Agriculture.
4. Bernatonyte, D. Burksaitiene, D. & Rimiene, K. (2013). Trade Specialization Pattern of Lithuania. Economics and Management: 2013. 18 (4).
5. Bernatonyte, D. & Normantiene, A. (2009). Estimation of Trade Specialization: the Case of the Baltic States. Ekonomika-Engineering Economics (2).
6. Burger, K. Kameo, D. & Sandee, H. (2001). Clustering of Small Agro-Processing Firms in Indonesia. International Food and Agribusiness Management Review, 2 (3/4): 289–299.

7. Caporale, G. M. & Sova, R. (2015). Trade Flows And Trade Specialisation: The Case Of China. Working Paper No. 15-07.
8. Center for Domestic Trade Policy Agency for the Assessment and Development of Trade Policy of the Ministry of Trade. (2015). Analysis of the Effectiveness of Warehouse Receipt Systems through the Integration of the Commodity Forward Auction Market. Jakarta: Puska Dagri, BP2KP, Ministry of Trade.
9. Churmen, Imam (2001). Save sugar industry in Indonesia. Millenium Publisher. Jakarta.
10. Dachliani, D. (2006). Demand of sugar import on 1980-2003 in Indonesia. (Thesis). Faculty of Economic. Diponegoro University. Semarang.
11. Delroy Anthony Armstrong (2004). The Potential Impact of Trade Policychanges on Caribbean Sugar. B.S., Louisiana State University.
12. Dipl.-Ing. Dieter Bahndorf, Udo Kienle. (2004). World Market of Sugar and Sweeteners. OECD-FAO Agricultural Outlook 2016-2025, OECD Publishing, Paris.
13. Firmansyah, (2008). The Position of Competitiveness and Specialization Trading of TeaIndonesia in Facing Globalization.Brawijaya. University. Malang.
14. Food Security Agency and Implementing Agency. 2014. Sistem Resi Gudang. Diakses pada <http://bkppp.bantulkab.go.id/data/hal/5/9/27/94-tentang-sistem-resi-gudang-srg>.
15. Gaynor, P.E., and R.C. Kirk Patrick. (1994). Tome Series Modeling and Forecasting in Business and Economics. New York, Mc Graw hill.
16. Haley, Stephen.2013. World Raw Sugar Prices The Influence of Brazilian Costs of Production and World Surplus/ Deficit Measures. United States Department of Agriculture.
17. Laws of the republic Indonesia. 2005. Undang-undang Republik Indonesia Nomor 9 Tahun 2006 tentang Sistem Resi Gudang. Jakarta.
18. Matsumura, Kanichiro. (2010). Demand and Supply Structure for Food in Asia. Sustainability 2011, 3, 363-395; doi:10.3390/su3020363.
19. Maulidah, Silvana. 2012. Agribusiness System. Faculty of Agriculture. Malang: Brawijaya University.
20. McConnell, Michael; Erik Dohlman; Stephen Haley. (2010). World Sugar Price Volatility Intensified by Market and Policy Factors.
21. McCormick, A. J. Watt, D. A. and Cramer, M. D. (2009). Supply and demand: sink regulation of sugar accumulation in sugarcane. Journal of Experimental Botany, Vol. 60, No. 2, pp. 357–364.
22. Pertani. 2012. Background of Warehouse Receipt System. Diakses pada <https://pertaniupgjatim.wordpress.com/2012/07/12/latar-belakang-sistem-resi-gudang/>
23. Riana, Dina. 2010. Use of Warehouse Receipt System. Faculty of Law. Jakarta: University of Indonesia.
24. Rumánková, Lenka and Smutka, Luboš. (2013). Global Sugar Market – The Analysis of Factors Influencing Supply and Demand. Volume LXI. No. 2, pp. 463–471.
25. Sa'diyah, C. (2014). Factors that influence of economic performance for crystal sugar in Indonesia. (Thesis). Faculty of Agriculture. University of Brawijaya. Malang.
26. Sinaga, N. (2006). Model Econometric Aplication. IPB Post Graduate. Bogor.
27. Susila, Wayan.R and Bonar M. Sinaga. (2005). Analysis of Sugar Industry Policy in Indonesia. Jurnal Agro – Ekonomi Volume 23 No. 1, page 30-53.
28. Xue Xu and Hailong Xia. (2014). Analysis and Outlook of China's Sugar Industry Development. Proceedings of Selected Articles of 2013 World Agricultural Outlook.

DOI 10.18551/rjoas.2019-08.17

DEVELOPMENT OF LEAN CONSUMPTION CONCEPT IN IMPROVING PROCUREMENT PROCESS OF NEW ITEM AND PROJECT PROCUREMENT

Damayanti Deasy*, Syah Tantri Yanuar Rahmat, Sunaryanto Ketut

Faculty of Economics and Business, University of Esa Unggul, Indonesia

*E-mail: deasydamayanti@yahoo.com

ABSTRACT

The concept of *Lean Consumption Map* was first popularized by (Jones, 2005). Lean consumption is how to emphasize a new focus on “performing more than less”. Many organizations seek to achieve efficiency and effectivity in their supply chain. One method that organizations use to achieve efficiency is the adoption of clean processes in their supply chain function. These processes aim to identify and eliminate the futile activities of operations and emphasize the need to continually improve performance. The concept of *Lean Consumption Map* is a development of Lean concept that comes from *Toyota Production System* (TPS), was popularized by Taiichi Ohno and assisted by Shigeo Shingo in 1956 at Toyota company and later combined with the Six Sigma method introduced by Motorola company after thirty years later, making Lean Six Sigma so popular as a method of improvement in accordance with the demands of the business world. Initially known as Lean Production, now many have been developed to be applied in various other industrial sectors such as *Lean Manufacturing, Lean Supply Chain, Lean Service, Lean Hospital, Lean Finance, Lean Human Resource, Lean Municipal, Lean Office, Lean Military*. Along with the need for lean development concept, by seeing the successful implementation of Lean consumption in the service sector, the same can also be applied to the procurement process. Based on the results study, *Lean consumption* can be applied with the aids of DMAIC (*Define, Measure, Analyze, Improve, Control*) and LCM (*Lean Consumption Map*) in improving the procurement process for the procurement of new items and projects.

KEY WORDS

Lean consumption, procurement, DMAIC

In 1990, a five-year study on the future of cars produced a book on revolutionary manufacturing practices developed by Toyota Motor Co. entitled *The Machine That Changes the World* (co-authored with Daniel Roos, director of the MIT International Vehicle Program, and Daniel Jones, director of the European program), the book was a call to wake up the company, until it became the home of the world's largest vehicle manufacturer.

For the first time, the world in general discovered secret recipes that Toyota used to grow endlessly in the global market. Obviously, Womack was very impressed with Toyota's lean manufacturing system (so called as such because the secret lies in using fewer things: labor, material, and money) that finally it became a lean spreader in 1997, when he founded the (non-profit) Lean Enterprise Institute in Cambridge, Massachusetts. Since then, Womack has traveled the world to spread lean. Recently in India for a seminar, Womack spoke with R. Sridharan from BT about the benefits and challenges of being lean (Sridharan, 2008).

Lean which was originally applied in the manufacturing industry, has now developed in the service industry. For example in hospitals, many mistakes can be helped by applying Lean, for example errors in calculating doses, errors in drug administration, errors in interpreting prescriptions, confusion about drug names, poor labeling, wrong drug administration, administration of patient payments that are wrong and so on (Syukron et al., 2013).

Studies on *lean* have also been carried out by many researchers (e.g. Widianoro, 2015; Lizasoain et al., 2015; Arfmann and Topolansky, 2014; Procter and Radnor, 2014; Maleyeff, 2014; Nadeau, 2017; Rüttimann et al., 2014; Leite and Vieira, 2015; Arafteh, 2016; Drake et al., 2013; Berenyi and Banhegyesi, 2015; De Sousa et al., 2014). (Arfmann, 2014)

stated that *Lean* is only suitable in the manufacturing or service industries. Moreover, based on the research described previously, it was found that the Lean Consumption Mapping (LCM) method had not been used to show improvement in the conditions of Current State and Future State. The researcher has also never received research using Lean Consumption Mapping (LCM) which is very suitable to describe the condition of Current State and Future State for public services or services. The research studied by (Widiantoro, 2015) forced the use of VSM (value stream mapping) tool in the process of procurement of goods and services. Lean's research with internal customers has also not been found, nowadays there are many researches on Lean implementation with external customers. Here is a study of the application of Lean thinking (Sunaryanto and Syah, 2019) where customers are people not employees of Bapenda. The following is also a study of Lean Government conducted on external customers (e.g. Hadriyanto and Syah, 2019; Ginanjar and Syah, 2019; Hartanto and Syah, 2019;). Likewise with research (Artadi and Syah, 2019) regarding lean service for purchasing with external customers.

Procurement of goods / services in an organization or company is a routine activity that is always carried out for the continuity of an operational process of an organization or company. According to (Anderson et al., 2012) the cost of procurement of goods / services incurred by the Procurement Department reaches 25% -60% of the company's total costs, depending on the type of industry. This fact suggests that Procurement needs to be managed comprehensively in order to get optimal savings. The Procurement Function must be in line with the company's business strategy and be able to align between the needs of the organization and the market's ability to supply goods / services.

This needs to be done so as not to lose business momentum that can cause losses. Delay in the procurement of goods, especially new items will have an impact on market dominance, the company's image as a follower not an innovator.

To achieve these objectives companies must be able to find and choose the right supplier, by selecting suppliers, and no less important is to control supplier performance. A good procurement process must be able to process the information available relating to the required procurement in order to produce the best transactions even in critical conditions. The Procurement Function must be in line with the company's business strategy and be able to align between the needs of the organization and the market's ability to supply goods / services (Lizasoain et al., 2015).

In general, the problem that arises is the long lead time in the process of procurement of goods and services for new goods or projects due to the lack of understanding of the level of urgency of these items both in terms of the procurement team, users and suppliers. This phenomenon can be categorized as waste which results in inefficiencies in the process of procurement of goods / services. One method that can be used to overcome waste in the process of procurement of goods / services is the Lean method through analysis of waste in the process flow. The Lean process is carried out through five steps namely (1) defining value for customers, (2) establishing a Lean Consumption Map, (3) making it "flow", (4) "pulled" by the customer, and (5) trying hard to achieve the best (Jones, 2005).

Based on consideration of the results of previous research and the results of the Research Desk related to the Lean Consumption method, this is what makes the researcher wanted to conduct research on the analysis of the effectiveness of applying the Lean Consumption concept in Indonesia with customers as internal parties. Of course, by using the Lean Consumption Mapping (LCM) tool, it will further increase knowledge both in terms of researchers, academics, local government and the wider community. It is hoped that this will become a reference for other researchers in the future.

The purpose of this study is to identify and reduce waste in the process of procuring goods and services for new items / projects. In addition, the purpose of this research action is to support continuous learning from organizational members. The researcher created and conducted experiments on a real problem, which was assisted by practitioners from the organization in the re-education process by forming new actions. Besides that through this research, it is expected to be able to create proactive support from the supplier side that is

also in line with the Lean Consumption concept which is certainly very profitable in terms of the company's business in broad terms.

LITERATURE REVIEW

In general, the stages carried out in the process of procurement of goods / services at PT. Strawland can be illustrated in figure 1.



Figure 1 – Stages of goods and services procurement

The development of lean concept originated from the Toyota Production System (TPS), which originated in Japan after the Second World War developed by Taiichi Ohno and assisted by Shigeo Shingo in 1956. At this point, Toyota operated in an environment that has limited resources when it comes to land as well as technology, iron investment and finance. These special circumstances made Toyota changed efficiency in their own way in improving performance in terms of QCD (Quality, Cost, Delivery) and put forward new basic principles for overcoming scarce resources. Lean's basic idea is to focus on flow efficiency rather than resource efficiency and to focus on customers, only produce what the customer wants, according to the customer's wishes, and when the customer wants it (Larsson, 2008).

Liker et al. (2006) suggested lean briefly means eliminating waste (waste / youth) in the entire process flow. Another term is NVA Time (Non Value Add Time) or time that has no added value. There are seven types of waste introduced by the term TIMWOOD. "T" stands for Transportation, which is a type of waste due to the activity of moving goods, raw materials (products), products and others from one place to another, even in close proximity throughout the process. "I" stands for Inventory, which is a type of waste due to excess raw materials, semi-finished products, or finished goods that cause long lead times, obsolescence, damage, Transportation and storage costs arise in the warehouse. "M" is an abbreviation of Movement, which is a type of waste due to excessive movement of employees during the process and does not provide added value to the product / service such as the activities of searching, piling up raw materials, taking, turning the body, stacking equipment and others . Walking around is also considered wasteful. Then "W" stands for Waiting, which is a type of waste due to workers waiting or not doing productive activities that can be caused by waiting for the next processing step, raw materials run out, machines or equipment is damaged, excessive machine capacity or there is a process that is not balanced. Then the first "O" stands for Overproduction, which is a type of waste due to producing goods / products earlier or in quantities more than what is needed by the customer. Producing earlier or later than needed results in other wastes, such as oversupply, storage, and transportation costs due to excess inventory. Inventories can be physical inventory or information queues. Then the next "O" stands for Overthinking, is a type of waste due to carrying out the stages of the process that are not needed in an ideal process. This inefficient processing is caused by several things such as partially damaged equipment, poor product design and so on. "D" stands for Defect, which is a type of waste due to the process carried out resulting in damaged / defective / failed products, reprocessing, replacing defective production, destruction of defective goods along with the time, costs and effort that must be incurred by the company.

An important aspect of Lean is mapping the flow of activities in order to identify which activities create value for customers, and which ones must be eliminated. The product must

flow through the process at the same speed as the customer requested. This is takt time, which determines the speed of the manufacturing system or the speed of internal processes. In this way, customer needs create interest in the organization (Bergman et al., 2010). According to Wedgewood (2006), a pretty good explanation of the difference between the two strategies, and the motivation for combining them is if, simply, Lean sees what we shouldn't do and aims to erase it; Six Sigma looks at what we should do and aims to do it correctly at the first and every time, forever.

The concept of Lean Consumption Map was first popularized by (Jones, 2005). Lean Consumption is how to emphasize a new focus on "doing more with less". Many organizations are looking to achieve efficiency and effectiveness in their supply chains. There are various opinions about how organizations can achieve this. One method that organizations use to achieve efficiency is the adoption of clean processes in their supply chain function. These processes aim to identify and eliminate the futile activities of operations and emphasize the need to continually improve performance. Data from the APQC Open Standards Benchmarking in procurement shows that 27.5% of organizations have invested in developing Lean process for their procurement function and nearly 13% plan to invest in the development of Lean process in the next two years. Organizations that embrace lean initiatives must involve their employees in all aspects of Lean adoption to ensure that these individuals understand why change is being made and the potential benefits for the entire organization, this was stated by (Partida et al., 2014).

By investigating contingencies in applying Lean Consumption production to procurement, (Costantino et al., 2015) emphasized that the principle of Lean Consumption production needs to be translated and interpreted into procurement operations by making changes to match procurement operations, and this helps reduce what we spend in stock in time and money.

Lean consumption metric for the procurement process in procurement is basically not far from the metrics in other industries. According to Ross and Associates Environmental Consulting, Ltd (2009), metric is divided into two, namely process metric and organizational metric. There are five process metrics and two organizational metrics. The first process metric is Time, which is the time needed to produce a product / service and deliver it to the customer. The second process metric is Cost, which is the cost that can be saved both the cost of the product or process as well as the number of employees needed in the related process. The third process metric is Quality, namely measuring the quality of the product or service as an example of customer satisfaction and whether the documents are complete and accurate. The fourth process metric is Output (ie), i.e. monitoring the production lines or activities of the agent process. As an example of the number of licenses that have been completed. The fifth process metric is Thinking Complexities, which describes the level of complexity and original processes, such as the number of handovers between processes and stages in the process. While the first organizational metric is Lean Consumption Deployment (Application of Lean Consumption), which measures the status of the application of Lean Consumption in companies such as the number of Lean activities or training that has been carried out. The second organizational metric is Motivation / Morale, which measures employee satisfaction and staff retention as indicated by employee surveys and turnover rates.

Procurement is a process of activities carried out by an organization in realizing procurement, both in the form of goods and services. It is important that the goods / services obtained can be suitable and obtained at the best cost to meet the needs in terms of quality and quantity, time, and location. Purchasing is any activity in which the organization receives invoices from outside parties when procurement includes all activities to get products from vendors to their final destination (Cees et al., 2005).

The principle of procurement is the activity of receiving / acquiring and buying goods or services from outside parties (these outsiders can be individuals / companies providing services or goods needed by the company) with the main goal is how to obtain goods or services needed by the company with prices, after sales services, quality, best quantity according to the needs of the company / organization. The procedure of the purchasing

process is to understand people who need goods and services. The next process is the selection of suppliers or main suppliers with two basic aspects such as potential suppliers and a list of all suppliers. Step 3 is usually called Purchase Order (PO). After placing an order, you need money to process the payment. The receipt of goods will verify the goods received from the supplier in accordance with the quantity of the purchase order document and provide information to the purchasing department. The Payment Department will verify the invoice based on the customer's request. Payments are made in accordance with the agreement which is a document that has been issued.

Research proposition is a logical relationship between two or more concepts summarized in the form of sentence statements. From the description of previous research, the proposition in this study is that Lean Consumption method can be applied and improve time efficiency in the process of procuring new goods and projects by saving time from the consumer side of the user while saving time from the service provider side, namely the procurement team. The second proposition that LCM and DMAIC are appropriate and structured methods for later use in the application of the concept of Lean Consumption in the procurement process.

METHODS OF RESEARCH

This study used qualitative research method with data obtained based on observations, document analysis and notes or reports. Qualitative research is inductive because it gets data in the field, empirical data. The researcher enters the field, studies the process or findings that occur in the field, records, analyzes, interprets and reports and draw conclusions from the process (Sugiyono, 2005).

Source of data came from primary and secondary data. Primary data obtained from direct observation of the process at PT. Strawland. And secondary data was obtained from the results of recording the relevant units and reviewing other documents. Research actions are defined as an approach in which researchers and research objects or informants work together in diagnosing problems and developing a solution based on a diagnosis (Bryman et al., 2007). PT. Strawland is a company engaged in the plastic industry, established since 1998, located in Jatake-Tangerang Industrial Estate.

Determination of informants in this study is the procurement team and user. Sampling was carried out from January to December 2018. In accordance with the research, the data collection was focused on identifying the procurement process of goods realized in the form of Value Added Assessment. Data on service process time was only used as supporting data. Observations were made during office hours, i.e. from 09.00-17.00 WIB.

In this study the data collection instruments used were observation guideline instruments, layout instruments (distance). Observation guideline instruments using data guidelines available at PT. Strawland, namely observation guidelines, document guidelines or notes, and other tools. Guidelines for observations contain guidance on observing the phenomena of activities in procurement, Standard Operating Procedures, Checklists, Cross Function Diagrams and so on. The second instrument is a layout instrument. Layout instrument (distance) using the conceptual guidelines of Lean consumption used starting with identifying problems, waste and the root causes are grouped into the overall procurement system (macro) and analysis at a smaller (micro) level at each facility. The data that has been collected by the researcher must be kept valid. The effort taken to maintain the validity of the data was to use data triangulation, namely triangulation of sources and triangulation of data collection methods (Moleong, 2009).

To get data on how the procurement process is carried out at PT. Strawland, an internal Thinking Measurement Tool (PMT) was used. PMT is designed to measure how much time is spent on a particular activity, in the total and average amount of time, to compare the overall results and find areas of improvement. This tool requires one person to observe the employee who works, and calculates the time in which the employee does the activity. During the study, a number of interviews and discussions were conducted with

officers and other employees involved in the procurement department. Interviews were also conducted with several users.

This interview method was also used to explore problems or constraints that can cause time wastage. Interviews and discussions were used at a greater level to discuss proposed improvements to get input from officers and other employees and leaders in terms of how feasible the proposal can be realized, and to develop further proposals with other officers.

The next stages of the research are presented in Figure 2. This research was only carried out until the analyze phase. To continue the next stage, the participation of top management decisions is needed.

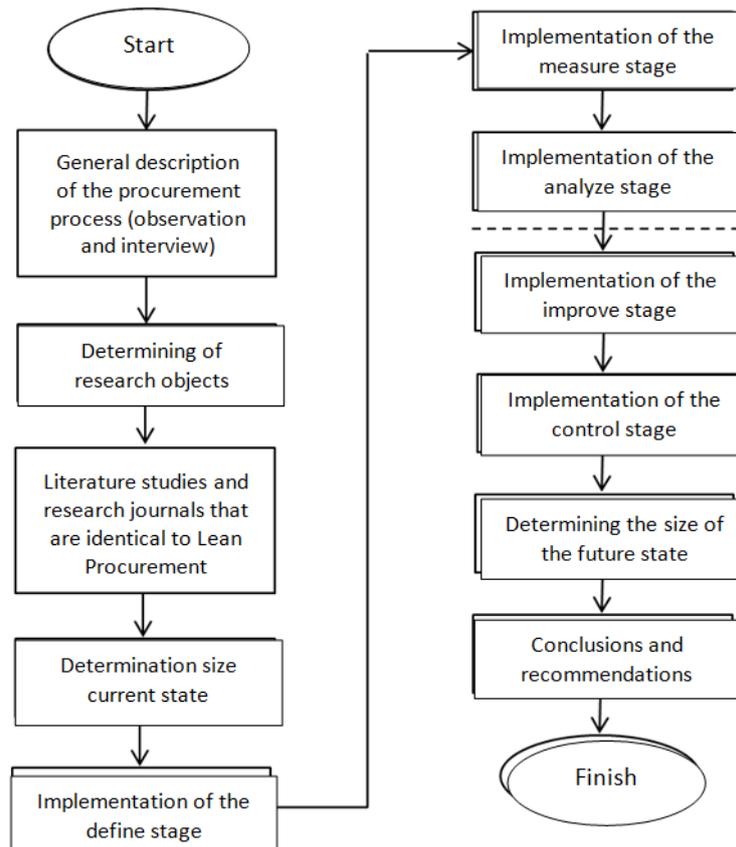


Figure 2 – Research Stages

The improvement method in Six Sigma for existing processes is called DMAIC and consists of five phases (Andersson et al., 2006). The first phase is "D" which is a continuation of Define, namely identifying the process or product that needs to be improved, preparing the project structure, and identifying the target desired by the customer. The second phase is "M" which stands for Measure, which identifies the most influential patterns, understands the process map and determines how to measure it. The third phase is "A" which is an extension of Analyze, i.e. identify and determine the root cause of the problem and the corrective steps to be taken. The fourth phase is "I" which stands for Improve, which is designing and testing the implementation of the most effective solutions. The fifth phase is "C" which stands for Control, which confirms that the solution is effective and ensures that it lasts long by setting new standards.

If $Y = f(x)$, then in Define phase, the outcome variable, "y", which needs to be corrected is identified, and y's performance is also estimated. Then move to the Measure phase, the input factor, "x" that might affect y is identified, and new detailed data about y and x are collected. In the Analyze stage, x which affects y is mapped, meaning that the relationship between the two is formed. The solution was designed in Improve phase, based

on the relationships that exist in Analyze, and in the Control stage it is verified that improvement is achieved (Magnusson et al., 2003).

In 1991, Motorola made a certification in the form of a "Black Belt" for Six Sigma experts. This is the first time that a formal degree of Six Sigma certification has been granted. The levels of certification in Six Sigma are respectively: White Belt (basic), Yellow Belt (Intermediate), Green Belt (Advance), Black Belt (Expert) and Master Black Belt (Master). Then in 1995, the CEO (Chief Executive Officer) of the General Electric (GE) company, Jack Welch decided to implement Six Sigma at GE which was then widely spread throughout the world after hearing of the success of Motorola and GE. (Syukron et al., 2013).

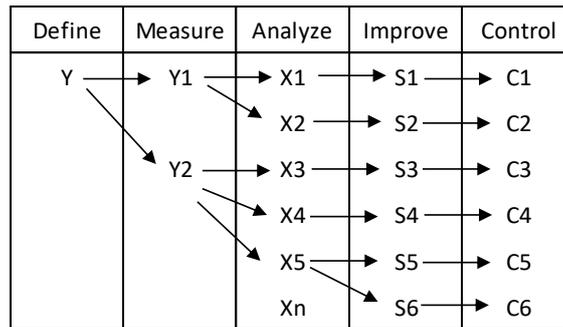


Figure 3 – DMAIC Method

The researcher used DMAIC measurement method (Define, Measure, Analyze, Improve, and Control). This method was combined with the Lean concept which aims to eliminate waste.

Define is the step to determine the measure of success of the implementation process and the limits that will be used in this project. The chosen measure of success is the average time of completion of service in each month based on the Checklist of documents and records using SIPOC tools (*Supplier, Input, Process, Output, Customer*) and *Time Series Plot*.

Measure is the stage to determine the focus of the problem by understanding the current process map (Current Process Map) based on Interview Guidelines, Observation Guidelines, Document Guidelines and other Tools. By using the Lean Consumption Map (LCM) tool, process map, cross function flowchart and VAA (value added assessment) the researcher will carry out mapping thus total consumer time performance (total customer time) and total provider time can be measured (total service provider time). Besides total time, the researcher measured the total value added time and total non-value added time both from the consumer and provider side. Consumer in this case is an internal employee of PT. Strawland namely the User / planner and provider is the procurement team.

Analyze is the stage of validation and determines the roots of the problems that directly affect the focus of the problem based on the Interview Guidelines, Observation Guidelines, Guidelines for Documents and other Tools. At the Analyze stage the researcher used FMEA tools (Failure Mode and Effect Analysis) to get the root of the problem that has a value of RPN (Risk Priority Number) which is at great risk to the focus of the problem.

Improve is the stage of determining the proposed improvement for each root cause by developing potential improvements that can come from published research, Lean reference books, Interview Guidelines and Observation Guidelines. These potential improvements were then validated with the IEM (Impact and Effort Matrix) tool. Potential improvements that get Zone I, Zone II and Zone III scores will be proposed improvements that will be validated in the improvement simulation process. The simulation process will use 60 sample data that will be a reference that the proposed improvement is effective or not, and at the same time see the effect of improving time in each process with the Lean Consumption Map (LCM) tool. Value Added and Assessment will be used to compare the value added activity against waste (waste).

Control is the stage to determine the control measures of the results of the Improve phase that the positive influence during the Improve stage is continuously maintained and consistently implemented by the procurement team. The results of the Control stage are in the form of a Change Management Plan document in which there are changes to the SOP (Standard Operational Procedure), Training to employees, determining key parameters, determining process indicators or control indicators, OCAP (Out of Control Action Plan), Checklist or Audit.

RESULTS OF STUDY

The research used in this thesis was based on DMAIC cycle with the concept of thinking. This was chosen because the researcher had an understanding of the framework of the previous research and considered it to be very suitable when implementing the types of improvement projects. DMAIC is a continuation of Define, Measure, Analyze, Improve and Control.

As explained above this study describes the current condition as Y which will be improved to Y 'or future conditions through the DMAIC process. In this study the completion time data from the start of the activity, namely the User (planner) submits a request for goods through the PR Form to the Open PO process as an illustration of the present condition. Based on these data, it is known that the completion time can reach 18265 minutes.

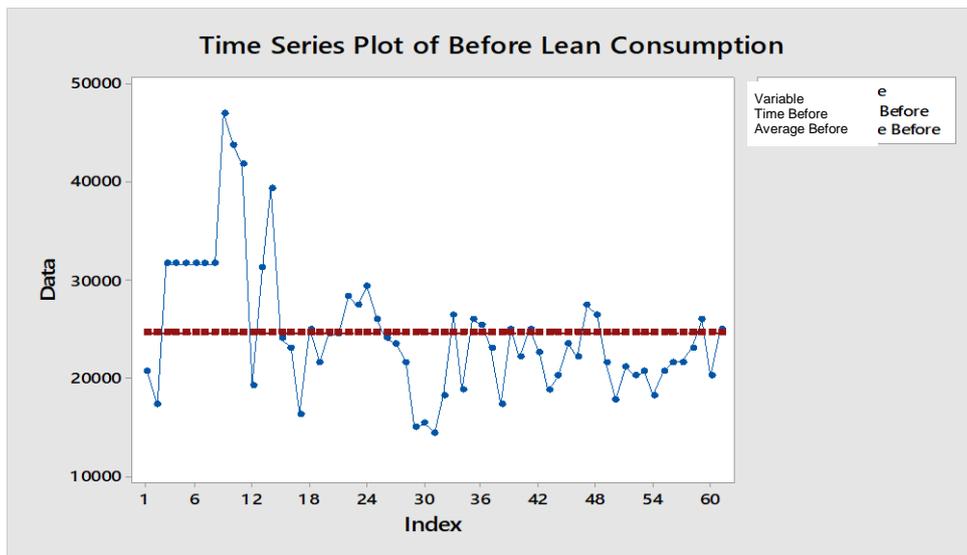
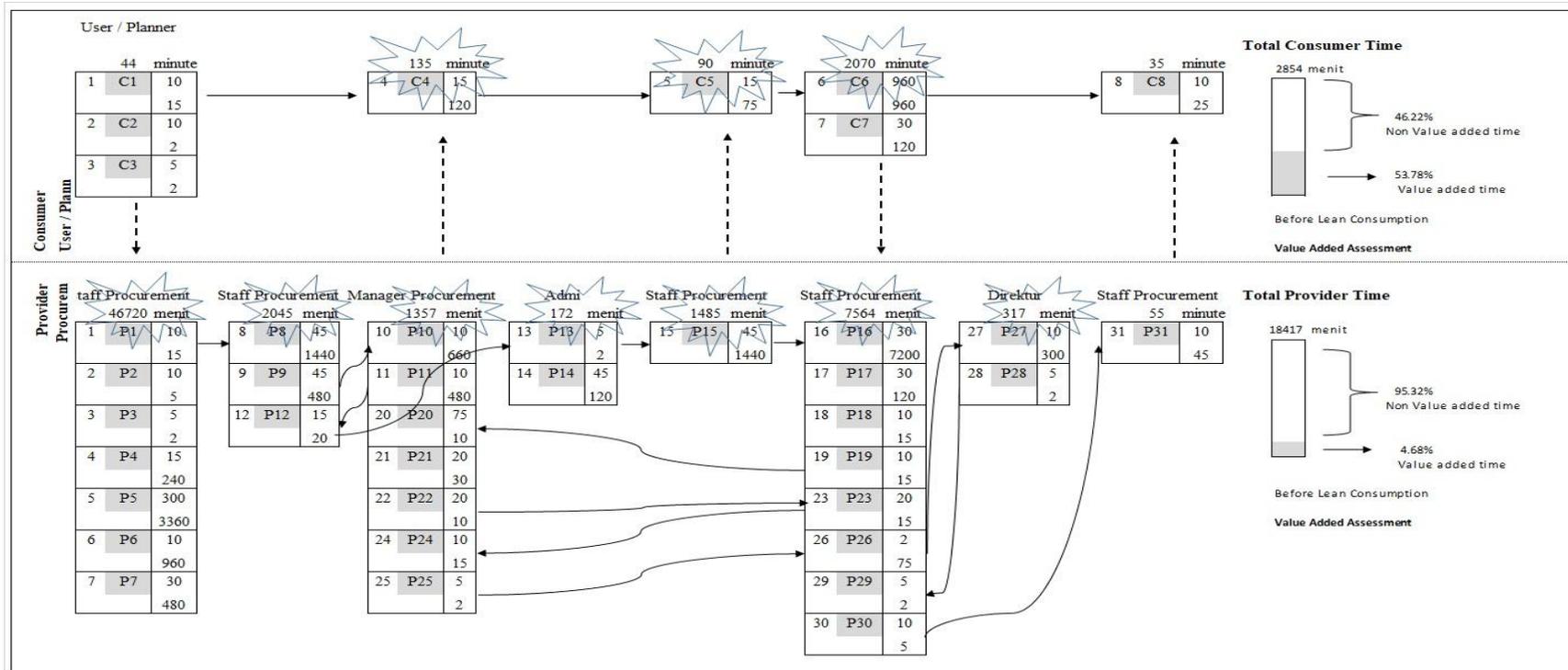


Figure 4 – Time Plot series before Lean Consumption

Based on the data above, the researcher determined the 9600 minute repair target, referring to the standard time determined by the KPI for the procurement of new goods and projects. Researchers assume that the process of procuring new goods and projects is not as long as it is in the data collected.

To explore this problem and achieve the above improvement target, the researcher determined the focus of the problem by understanding the current process map (Current Process Map) based on Interview Guidelines, Observation Guidelines, Document Guidelines and other Tools. By using the Lean Consumption Map (LCM) tool, the researcher will do the mapping so that it can measure the performance of total consumer time (total customer time) and total provider time (total service provider time).

The first step is to map the procurement process flowchart or Flow Chart. The flow starts with the submission of a PR form by the user, and then submits it to the Procurement team. Then the Procurement team will recap it PR and find vendors or suppliers on request.



- C1 Journey to Submit PR Form
- C2 Communicate with procurement staff
- C3 Handover of PR form
- C4 Provide confirmation of the meeting schedule
- C5 Provide confirmation of the meeting schedule
- C6 Sample testing process
- C7 Report trial sample results
- C8 Receive notifications for making Pos
- P1 Receive PR form
- P2 Check the completion of the approval
- P3 Initials on handover of PR form
- P4 Recap of PR documents
- P5 Perform vendor searches
- P6 Make a visit and meeting appointment
- P7 Price request process
- P8 Establish prequalification requirements
- P9 Checking the completeness of legality and validation documents by the Procurement
- P10 Initials/ validation of the completeness of legality doct
- P11 Submit to procurement staff
- P12 Receive validated files nad submit to admin staff
- P13 Receive validated vendor completeness files from procurement staff
- P14 Validated vendor registration
- P15 Arrange meeting schedules with suppliers to discuss samples
- P16 Request samples to the user
- P17 Provide samples to the user
- P18 Receive reports on trial results
- P19 Evaluate price quotes with Procurement management
- P20 Discussion of bidding and evaluation
- P21 Price negotiations with suppliers
- P22 Define the supplier
- P23 Make a PO and submit it to the Procurement manager
- P24 PO signing
- P25 Submit the signed PO to the Procurement staff
- P26 Receive PO files that have been signed by the manager and forward them to the Director
- P27 PO signing
- P28 Submit the signed PO to the Procurement staff
- P29 Receive PO files that have been signed by the Director
- P30 Send Pos to suppliers by email/ fax
- P31 Provide notification on the making of PO to the users.planners

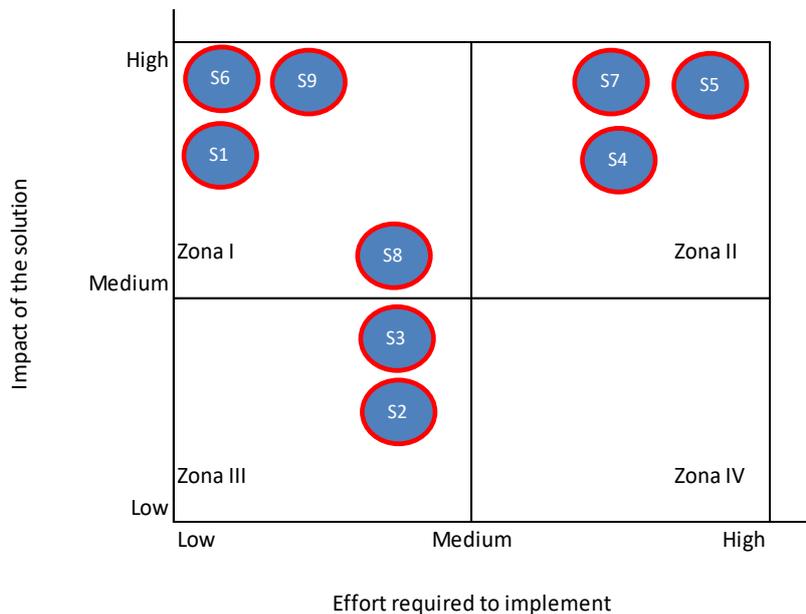
Figure 5 – LCM before *Lean Consumption*

The next step after mapping with Flow Chart is to map the Lean Consumption Mapping. It aims to find out and assess activities with value added and non-value added activities. This Lean Consumption Mapping analysis is useful to find out waste in every activity both in terms of service users and service providers so that later it can be made improvements to activities that lack value added.

Table 1 – Value Added Assessment Sebelum Lean Consumption

Description		Customer (Consumption Time)	Provider (Provision Time)
Total Time	(a)	2374	18265
Value Added	(b)	1055	822
Non Value Added	(c)	1319	17443
% VA	= $(b)/(a)*100\%$	44.44%	4.50%
%NVA	= $(c)/(a)*100\%$	55.56%	95.50%
Value to Waste Ratio	= $(b)/(c)*100\%$	79.98%	4.71%

Based on the results of Lean Consumption Mapping, it can be seen that from the total user service time needed to complete the process is 2374 minutes with a total value added of 1055 minutes or 44.44% while the total non-value added 1319 minutes or 55.56%. While in terms of service providers the total time needed to complete the process is 18,265 minutes with a total value added 822 minutes or 4.71% while the total non-value added is 17,443 minutes or 95.50%. In addition to the fact that high non-value added activities were found, it was also found that there were many activities that were waiting or waiting in line by service users, resulting in a waste of time.



No	Proposed Improvements	Code
1	Establish a standard processing time	S1
2	Make a follow up checklist	S2
3	Make internal communication media (email)	S3
4	Asking suppliers to provide Technical data sheets	S4
5	create an integrated PR & PO system	S5
6	Creating a supplier database	S6
7	Make a follow up checklist	S7
8	Negotiations with suppliers done by email	S8
9	Notification of shipping PO via messenger notification	S9

Figure 6 – Mapping on the proposed improvements with the Effort and Impact Matrix

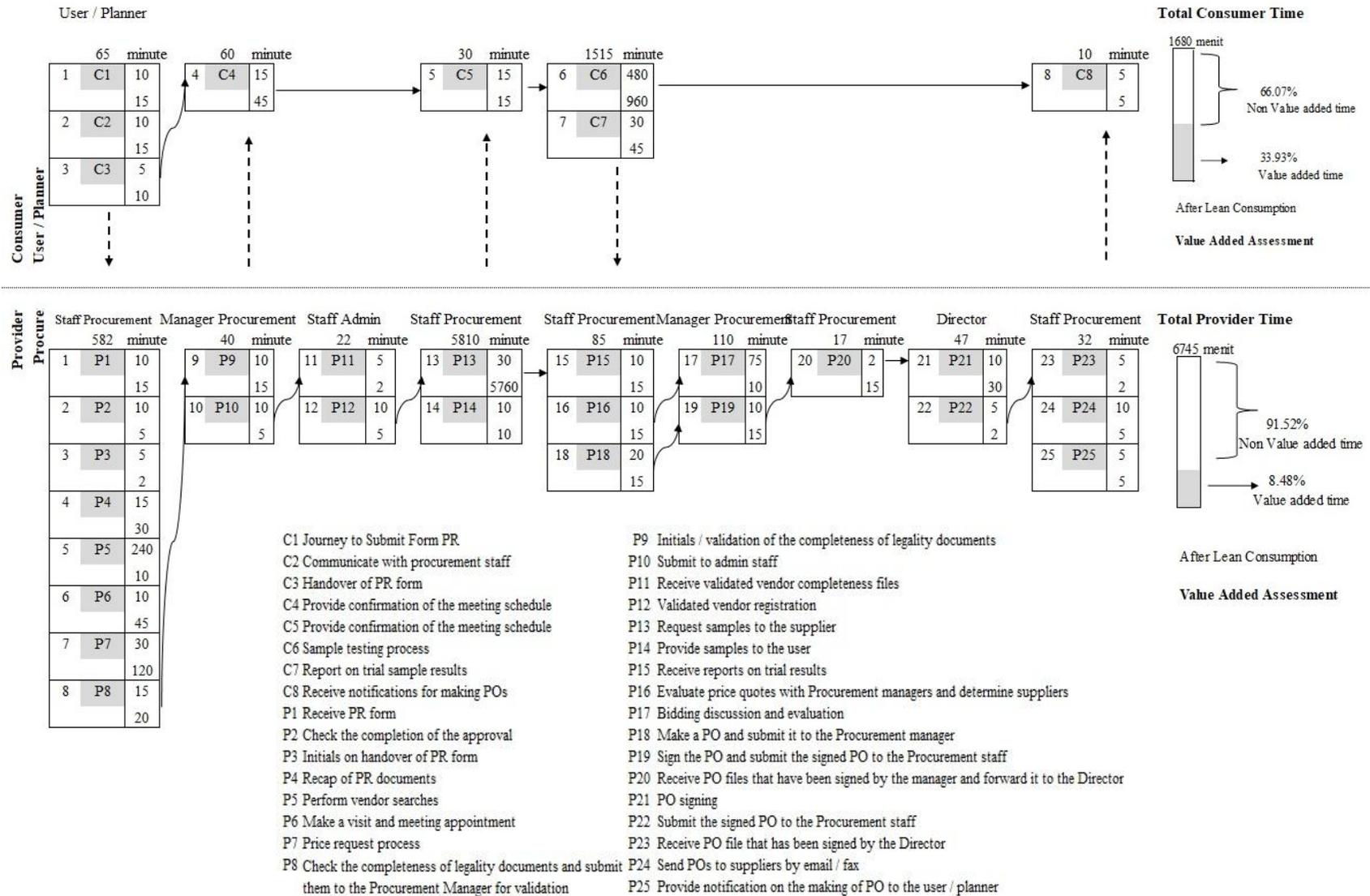


Figure 7 – Simulation of LCM after Lean Consumption

To solve this problem, the researcher used the next tool, FMEA table. FMEA aims to find the root problems of a work process. In addition, FMEA can also be used to predict a process failure so that proposed improvements can be made.

The first step in the analysis using FMEA, which is looking for a process with a high Risk Priority Number (RPN) value with a general standard > 100, is considered a high RPN and needs improvement. Next, look at the Severity value if the high severity value can be considered to be a process improvement. Based on the results of the FMEA analysis, it can be seen that there are some high RPN values. Some of the processes with the highest RPN values are the handover of the purchase request form for the service user side by 150 points and the process of giving the results of a trial sample report. Meanwhile, in terms of service providers, processes with high RPN and the need for improvement are requesting samples to suppliers, discussions about supplier price quotes, and the process of approval of purchase orders by management. Meanwhile, the value of process severity analysis was not carried out because it was included in the process with a high RPN value.\

Based on the FMEA analysis, nine proposed corrective actions were taken to reduce the value of RPN (Risk Priority Number) based on the Flow Chart, Process Map, Cross Functional Flowchart and LCM. In the Improve stage, all proposed improvements will be selected using the Impact and Effort Matrix method.

The results obtained are that the total time required is reduced both from the service user side, from 2,374 minutes to 1,680 minutes or 29.23% improvement or from the service provider side, from 18,265 minutes to 6,745 minutes or 63.07%. This improved process can be called Lean with class. The average settlement of requests also dropped from 51 days to 14 days or 66%, better than the target in the Define stage. The Control Phase determines the new SOP, Change Management Plan and OCAP to maintain the consistency of repairs that are carried out.

Table 2 – Simulation of VAA after Lean Consumption

Description		Customer (Consumption Time)	Provider (Provision Time)
Total Time	(a)	1680	6745
Value Added	(b)	570	572
Non Value Added	(c)	1110	6173
% VA	$= (b)/(a) * 100\%$	33.93%	8.48%
%NVA	$= (c)/(a) * 100\%$	66.07%	91.52%
Value to Waste Ratio	$= (b)/(c) * 100\%$	51.35%	9.27%

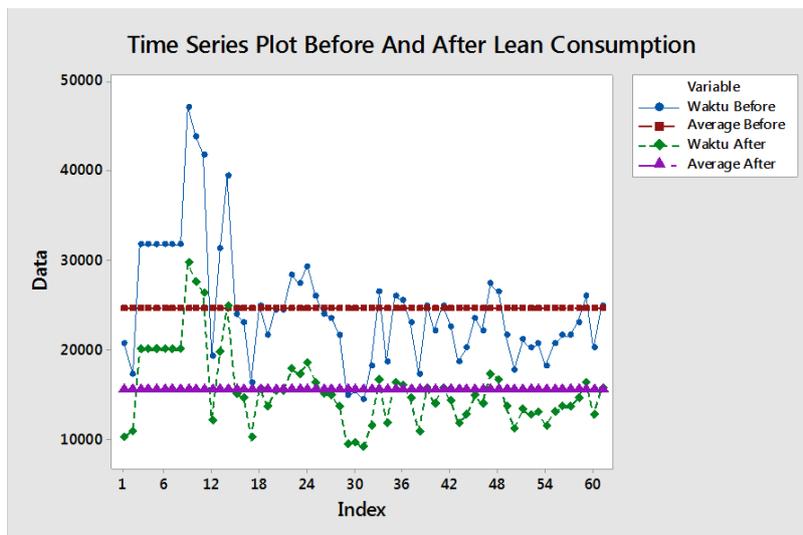


Figure 5 – Simulation of Time Plot Series after Lean Consumption

DISCUSSION OF RESULTS

Based on the results of the analysis and discussion, it is necessary to have an idea to apply the Lean Consumption in the procurement department. There are three steps, namely starting the Lean Consumption program, running and managing the Lean Consumption program and maintaining the continuity of Lean Consumption program.

Lean Consumption Program is implemented in stages to provide time and opportunity for all teams to understand and accept the Lean Consumption as a new culture of work. That understanding to get new results must be in a new way, requiring time for each team member to fully accept.

Table 3 – Stages to start *Lean Consumption*

Make a team to implement Lean Thinking	Work plan of Lean Thinking	Training on Lean Thinking	Determine the Focus of improvement area	Determine communication media
Implementing team is authorized to issue policies in the form of SOP, perform control and supervision related to Lean Thinking program	Organize work plan of Lean Thinking in accordance with the target of achievement	Provide insights on lean Thinking to all of procurement team and user/ planner	Identify stages/ processes of improvement which impact the company	Organize materials and methods of communication correctly based on targets in delivering Lean Thinking program

Running and managing Lean consumption program consists of three stages, namely program planning, program implementation and program follow-up (EPA, 2009). The first stage of program planning, at this stage, ensures that the Lean Consumption program is well planned in terms of scope and human resources. The second stage of program implementation, which is every Lean Consumption activity is a journey that requires facilitation and guidance as well as hard work from a highly committed team. The third step is the follow-up of the program, which is after the Lean Consumption project ends, effective follow-up is very important to complete the remaining or handed over action items to the team working in the process, to prevent setbacks, and to keep the focus-based improvement team in place continuously.

After an agency / institution has successfully completed a Lean Consumption project, it is important to think strategically about how to maintain improvements and, if desired, spread the spirit of Lean Consumption throughout the organization. There are four models for implementing Lean Consumption in organizations, along with specific steps to maintain and disseminate Lean consumption activities, namely *Agency-Wide Model, Department/Division Model, Targeted Model and Grass Roots Model*.

CONCLUSION AND SUGGESTIONS

The application of Lean Consumption in the improvement of the procurement process to procure new items and projects with internal customers is able to be applied with DMAIC and LCM methods with significant results. With the same characteristics and organizational models, this Lean Consumption can also be applied more broadly in other departments by following the same application steps. Lean Consumption Map is able to describe the overall Value Added Time and Non Value Added Time (waste) contained in the Customer side and from the Provider side well. LCM is able to display value flow information for administrative or service processes.

Compared to the use of Value Stream Map (VSM) which is commonly used before, there are many elements such as Data Box, Source Flow and Inventory that cannot be used to describe the flow of values in the public service process. In addition, the Value Stream Map prioritizes Physical Flow over Information Flow even though they are depicted on the same map. Lean Consumption Map (LCM) appears as a solution to describe the service process that prioritizes the flow of information rather than the physical or material flow. FMEA is superior in giving priority to improvement when compared to Fishbone Diagrams or 5Why Analysis which are generally used in the previous Lean method presented in A3 Report.

This research is only focused on the internal procurement team, so the next research is expected to be able to examine other departments such as maintenance, marketing, warehouse and others. This research is also still focused on looking at the waste process recorded in TIMWOOD, it is expected that further research can see the waste process outside of TIMWOOD data; this is to verify and synchronize data waste. This research was conducted on one company, as we know there are many companies that can be the object of research, so the hope of further research can be done on several companies.

REFERENCES

1. Arafeh, M. (2016). Leveraging Six Sigma Tools and Methodology to Improve Student English Language Performance at Elementary School. *American Journal of Operations Research*, 6(July), 261–274. <https://doi.org/http://dx.doi.org/10.4236/ajor.2016.64026>.
2. Arfmann, D., & Topolansky, F. (2014). The Value of Lean in the Service Sector: A Critique of Theory & Practice. *International Journal of Business and Social Science*, 5(2), 18–25. <https://doi.org/10.1108/20401461011049520>.
3. Artadi, R., & Syah, T.Y.R. (2019). Lean Service Design in Purchasing Order of Motorcycles: Case Study at Mandiri Utama Finance Branches Tangerang, Indonesia, 01(01), 1–5.
4. Berenyi, L., & Banhegyesi, L. (2015). the Evaluation and Selection of Suppliers – in a Lean Approach. *European Scientific Journal*, University of Miskolc, Hungary, 11(7), 25–38.
5. Cees, J., Weele, V., & Arjan, J. (2005). Purchasing Portfolio Models: A Critique and Update.
6. Costantino, F., Di Gravio, G., & Nonino, F. (2015). Insights from action research: Implementing an innovative lean procurement framework for global sourcing. *International Business Management*. <https://doi.org/10.3923/ibm.2015.416.424>
7. de Sousa, D. C., Gonçalves, R. F., Barboza, M., de Souza, R. R., & Vendrametto, O. (2014). Lean Production and Just in Time: A Case Study of the e-procurement Application. *IFIP Advances in Information and Communication Technology*, 440(PART 3), 19–26. https://doi.org/10.1007/978-3-662-44733-8_3.
8. Drake, P. R., Myung Lee, D., & Hussain, M. (2013). The lean and agile purchasing portfolio model. *Supply Chain Management: An International Journal*, 18(1), 3–20. <https://doi.org/10.1108/13598541311293140>.
9. Ginanjar, A., & Syah, T. Y. R. (2019). Lean Government Concept and Design Over Service Administration in Indonesian ID Card, 01(01).
10. Hadriyanto, & Syah, T. Y. R. (n.d.). Lean government.pdf.
11. Hartanto, A., & Syah, T. Y. R. (2019). Lean Government Applied Concept in Mutation Service over Land and Building Tax at Badan Pendapatan Daerah (Bapenda), 6–10.
12. Jones, D. T. (2005). Lean Consumption Lean Consumption by James P.
13. Leite, H. dos R., & Vieira, G. E. (2015). Lean philosophy and its applications in the service industry: a review of the current knowledge. *Production*, 25(3), 529–541. <https://doi.org/10.1590/0103-6513.079012>.
14. Lizasoain, A., Tort, L. F., Garc'ia, M., Gomez, M. M., Leite, J. P., Miagostovich, M. P., ... Victoria, M. (2015). No {Title}. *Journal of Applied Microbiology*, 119(3), 859–867.
15. Maleyeff, J. (2014). Sustaining Public Sector Lean Six Sigma: Perspectives from North America. *Management and Organizational Studies*, 1(2), p92. <https://doi.org/10.5430/mos.v1n2p92>.
16. Nadeau, S. (2017). Lean, Six Sigma and Lean Six Sigma in Higher Education: A Review of Experiences around the World. *American Journal of Industrial and Business Management*, 07(05), 591–603. <https://doi.org/10.4236/ajibm.2017.75044>.
17. Partida, B., Framington, & Aug, J. (2014). Adopting Lean Processes in Procurement Can Lead to Efficiency and Lower Costs, 18, 78–80.
18. Procter, S., & Radnor, Z. (2014). Teamworking under Lean in UK public services: lean

- teams and team targets in Her Majesty's Revenue & Customs (HMRC). *International Journal of Human Resource Management*, 25(21), 2978–2995. <https://doi.org/10.1080/09585192.2014.953976>.
19. Rüttimann, B. G., Fischer, U. P., & Stöckli, M. T. (2014). Leveraging Lean in the Office: Lean Office Needs a Novel and Differentiated Approach. *Journal of Service Science and Management*, 07(05), 352–360. <https://doi.org/10.4236/jssm.2014.75032>.
 20. Sridharan, R. (2008). Lean is about a shared process : James P ., 1–4.
 21. Sunaryanto, K., & Syah, T. Y. R. (2019). Application of Lean Thinking Development : Case Study over Badan Pendapatan Daerah (Bapenda), South Tangerang Based on Lean Government, 20–26.
 22. Widianoro, B.C. (2015). 都市ガスコージェネレーションの計画設計と運用, VII(1), 82-91.

DOI 10.18551/rjoas.2019-08.18

THE DEVELOPMENT OF INSTITUTIONAL MODEL THROUGH THE IMPLEMENTATION OF BALANCE SCORECARD METHOD TO IMPROVE THE PERFORMANCE OF SEAWEED AGRIBUSINESS INSTITUTION

Hamid Wahyuniati*, Rommy Nursaban, Abadi Sarini Yusuf, Nur Noval, Zaid Sudirman

University of Halu Oleo Kendari, Indonesia

*E-mail: wahyuniatihamid@gmail.com

ABSTRACT

Agribusiness institutions have a strategic role in the development and management of superior commodities in Indonesia. The existence of agribusiness institutions is expected to strengthen the bargaining position of agribusiness actors and increase commodity competitiveness. This reason makes most groups of agribusiness actors to form institutions in order to maintain the sustainability of the businesses. However, several established agribusiness institutions have not been able to overcome the problems faced, such as; high economic disparity between farmers and other related economic actors, weak market access, and low production continuity so that the existence of agribusiness institutions still cannot give an impact on improving the economic status of the society and reducing poverty. The urgency of this study is to develop seaweed agribusiness institutions in Southeast Sulawesi that are able to improve institutional performance and have an impact on added value, wider market, and product selling prices. This study used a balance scorecard method to improve the institutional performance of seaweed agribusiness by which it has not been maximally implemented in overcoming the problems faced. The problems in questions are in the context of developing and managing seaweed agribusiness. Based on the performance recapitulation results of learning and growth perspectives on seaweed agribusiness institutions in Lea-Lea District of Baubau City, it shows that the level of productivity and the level of job satisfaction have sufficient score so that this indicator has a score of 3 (good). The results indicate that, in general, the performance of learning and growth perspectives on seaweed agribusiness institutions in Lea-Lea District of Baubau City is still sufficient or not in the category of excellent.

KEY WORDS

Alance Scorecard, institutional model, seaweed, agribusiness.

Agribusiness institutions have a strategic role in the development and management of superior commodities in Indonesia. The existence of agribusiness institutions is expected to strengthen the bargaining position of agribusiness actors and increase commodity competitiveness. This becomes the background of most groups of agribusiness actors to form an institution in order to maintain the sustainability of their businesses. However, several established agribusiness institutions have not been able to overcome the problems faced, such as; high economic disparity between farmers and other related economic actors, weak market access, and low production continuity so that the existence of agribusiness institutions has not yet had an impact on improving the society's economic status and reducing poverty.

The same thing also happened in the management of seaweed agribusiness in Southeast Sulawesi. The conditions in the field indicate that the fundamental problem faced by seaweed agribusiness actors is the high economic disparity between agribusiness players and other related economic actors such as traders and wholesalers. In addition, the continuity of production and market access to this business is still very low. This becomes an obstacle in the development of seaweed agribusiness management in Southeast Sulawesi. Besides that, the selling price of seaweed commodities is also relatively low because the selling price is set far below the market price by the traders. This condition points out that the seaweed agribusiness institution in Southeast Sulawesi has not functioned optimally in

increasing the bargaining position of agribusinesses towards other related economic actors. As a result, it has not had an impact on improving the welfare of seaweed farmers in Southeast Sulawesi.

In order to overcome the problems faced, it needs a format of an institutional development model that is able to improve institutional performance as a whole. The seaweed agribusiness institutional model in this study will be developed by applying the *balance scorecard* method to develop and measure the achievement of institutional performance so that the resulting model can help to solve the problems in the development and management of seaweed agribusiness in Southeast Sulawesi.

The specific objective of this study is to develop and improve the performance of seaweed agribusiness institutions. To achieve this objective, several activities were carried out, namely:

- Analyzing the real condition of seaweed agribusiness institutional aspects;
- Constructing a seaweed agribusiness institutional design model;
- Calculating the performance of the seaweed agribusiness institutional design model through balance scorecard method;
- Establishing a model of seaweed agribusiness institutional development that is able to improve institutional performance;
- Calculating the projection of the increase in institutional performance from the seaweed agribusiness institutional development model through balance scorecard method.

The urgency of this study is to develop seaweed agribusiness institutions in Southeast Sulawesi that are able to improve institutional performance and have an impact on increasing added value, accessing a wider market and increasing product selling prices. In addition, this research is expected to improve the income and welfare of seaweed agribusiness actors in Southeast Sulawesi so that it will have an impact on reducing poverty.

This study is applied research that is proposed to be funded through the Applied Research scheme. This study will apply the balance scorecard method to improve the institutional performance of seaweed agribusiness by which has not been maximally implemented in overcoming the problems in the development and management of seaweed agribusiness.

With the output of this study, the long-term benefits to be achieved are the development of seaweed agribusiness institutional model that is able to improve the institutional performance of seaweed agribusiness so as to increase added value and improve institutional performance. As a result, it will contribute to the acceleration of economic development especially in Southeast Sulawesi. This research is expected to increase the income and welfare of seaweed agribusiness actors.

LITERATURE REVIEW

An institution is an organization or principle, both formal and informal, which regulates the behavior and actions of the community in achieving certain goals. An institution is centered on goals, values, or social needs that refer to a procedure, certainty, and guidance for doing something [1]. Furthermore, institutional development is a form of empowerment based on a system of values and socio-culture. An institution is formed by formal constraints in the form of rules, laws, and constitution as well as informal rules in the form of norms, agreements, and so on [2].

Institutional conception includes 2 (two) important elements, namely; (1) Norm and Convention and (2) Role of Games. Institutions are sometimes formally written and enforced by government officials and sometimes are informally written as in the customary rules and norms adopted by the community. Institutions are generally predictable, fairly stable, and can be applied repeatedly so that they are often interpreted as a set of rules or procedures for the continuation of a set of working rules of going concern [3].

Basically, institution is formed with several roles as follows: (a) inter-organizational tasks that mediate the society and the state; (b) resource tasks which include mobilization of

local resources (labor, capital, material, and information) and management in achieving community goals; (c) service tasks which consist of service requests that describe the purpose of development or the coordination of requests by local communities; and (d) extra-organizational tasks which require local demand for bureaucracy or organization outside the community against the interference of outside agents [4].

The institutional concept is very good to be applied to the agribusiness system [5]. Kusnandar et al (2013) suggested that in analyzing business institutions and the agribusiness industry, several institutional components are needed, namely: (1) upstream agribusiness institutions; (2) farming business institutions; (3) downstream industry institutions; (4) marketing institutions; and (5) supporting institutions. The analysis that can be used in developing institutional models includes system analysis, institutional analysis, and analysis interactions [6].

Performance measurement is one of the most important factors for the company. The measurements can be used to assess the success of the company and also a basis for compiling a system of rewards in the company [7]

Balance scorecard is a method of measuring organizational performance as a whole that describes the organization's vision and strategy into 4 (four) perspectives, namely; (1) Financial Perspective; (2) Customer Perspective; (3) Internal Business Process Perspective; and (4) Growth and Learning Perspective [8]. Moreover, it is explained that the balance scorecard helps organizations to streamline vision and strategy with business activities and measures actual organizational performance against preset goals. Based on this explanation, it can be concluded that the balance scorecard is a comprehensive measure of organizational performance[9].

The balance scorecard method has 3 (three) principles that allow strategies to be translated into various objectives [10] such as;

- Causality. The causal chain must cover the four balance scorecard perspectives which have a causal relationship;
- The size of the result and performance driver. This benchmark serves as a tool to determine changes in organizational performance;
- Relation to financial problems. The causal relationship of all measures in the balance scorecard must be related to each company's financial goals;
- This institutional performance assessment analysis is calculated using the balance scorecard method. The method was first introduced by Kaplan and Norton in the Harvard Business Review which discussed a comprehensive framework of thinking about measures of performance to implement the strategy.

The research about the development of seaweed agribusiness institutional model is done by implementing a balance scorecard method to improve the institutional performance of seaweed agribusiness.

METHODS OF RESEARCH

This study is participatory appraisal research and is done with FGD techniques by; conducting institutional analysis; compiling a design model for the implementation of seaweed agribusiness; doing institutional analysis; developing a model for the seaweed agribusiness development; and establishing a balance scorecard analysis. This study is focused on Baubau City of Southeast Sulawesi Province, especially in the District of Lea-Lea in Baubau City. The informants in this study were farmers, collectors, industry, local government, and related institutions.

RESULTS AND DISCUSSION

The institutional model of seaweed agribusiness at the seaweed cultivation center of Baubau City is an illustration of the institutional model of seaweed agribusiness that currently becomes the location of this study, that is Lea-Lea District of Baubau City. The institutional model is prepared based on the real conditions of the seaweed agribusiness carried out by

the business actors. This model generally describes the institutions involved in seaweed agribusinesses such as government institutions, capital institutions, related business actors, and institutional seaweed business groups.

The institutional model is compiled based on the results of in-depth interviews and the participatory appraisal that is done by providing detailed explanations regarding current business activities and institutional forms. The seaweed agribusiness institutional model in this study will then be divided into 3 (three) models, namely; (1) raw materials institutional model; (2) agribusiness institutional model (on-farm); and (3) marketing institutional model. The description of the institutional model of seaweed agribusiness is as follows:

The results of the study and data collection showed that the institutional model of seaweed agribusiness raw materials in Lea-Lea District, Baubau City was generally formed by several components. The components can be seen in Figure 1 below.

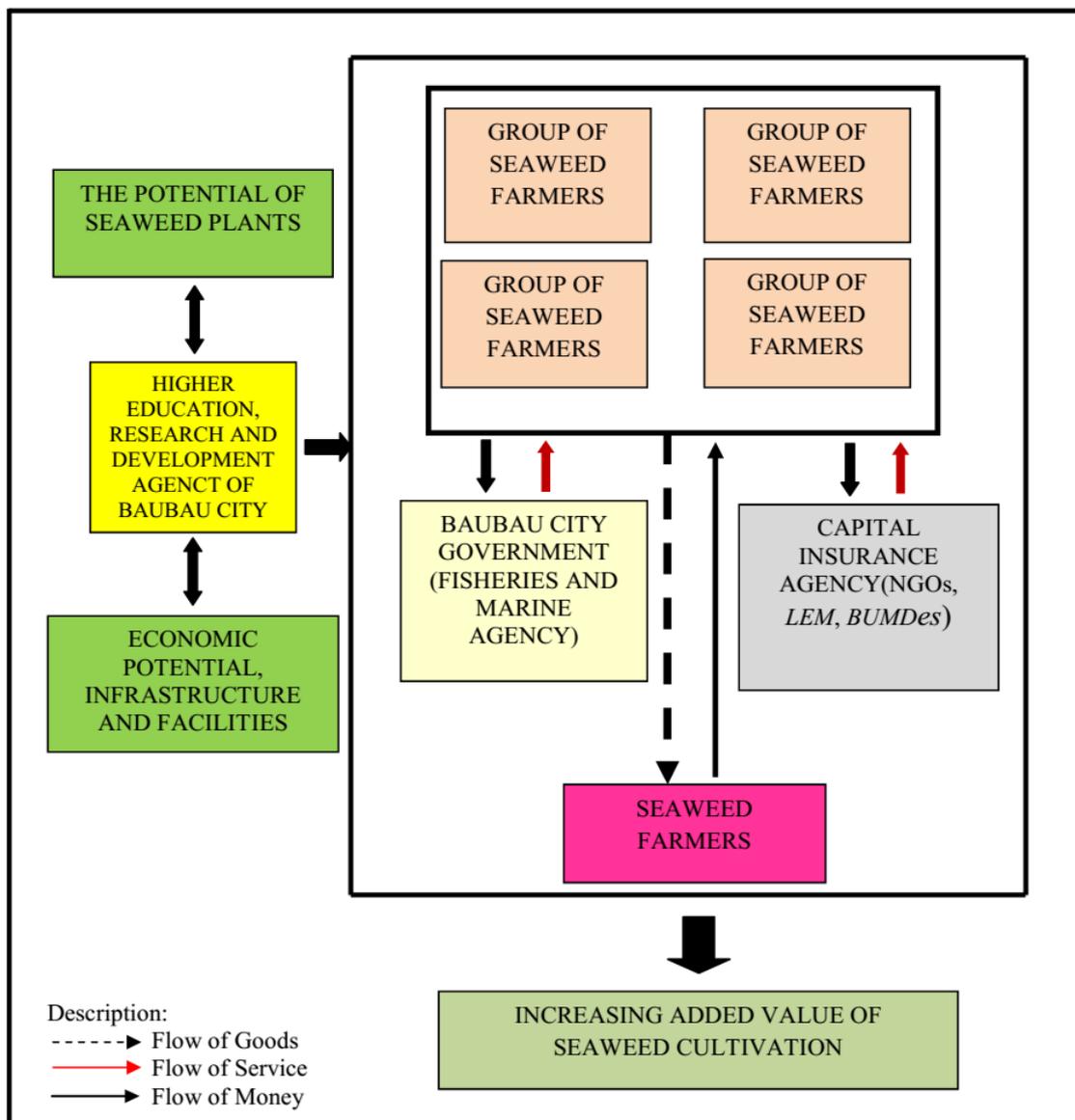


Figure 1 – Institutional Model of Raw Seaweed Materials in Lea-Lea District, Baubau City

Based on the Figure 1 above, it can be seen that the institutional model of the raw materials in Lea-Lea District, Baubau City consists of four (4) institutions, namely; (1) seaweed farmer groups, (2) Baubau City Government institution which in this case is the Work Unit of Regional Apparatus who is responsible for developing seaweed businesses such as; Marine and Fisheries Agency of Baubau City; (3) capital insurance agency, which in

this case is the NGOs, Community Economic Institutions (*Lembaga Ekonomi Masyarakat* or LEM), and Village-owned Enterprises (*Badan Usaha Milik Desa* or BUMDes); and (4) seaweed farming institutions.

The results of the study and data collection showed that there are several components in the institutional model of seaweed agribusiness in Lea-Lea District, Baubau City.

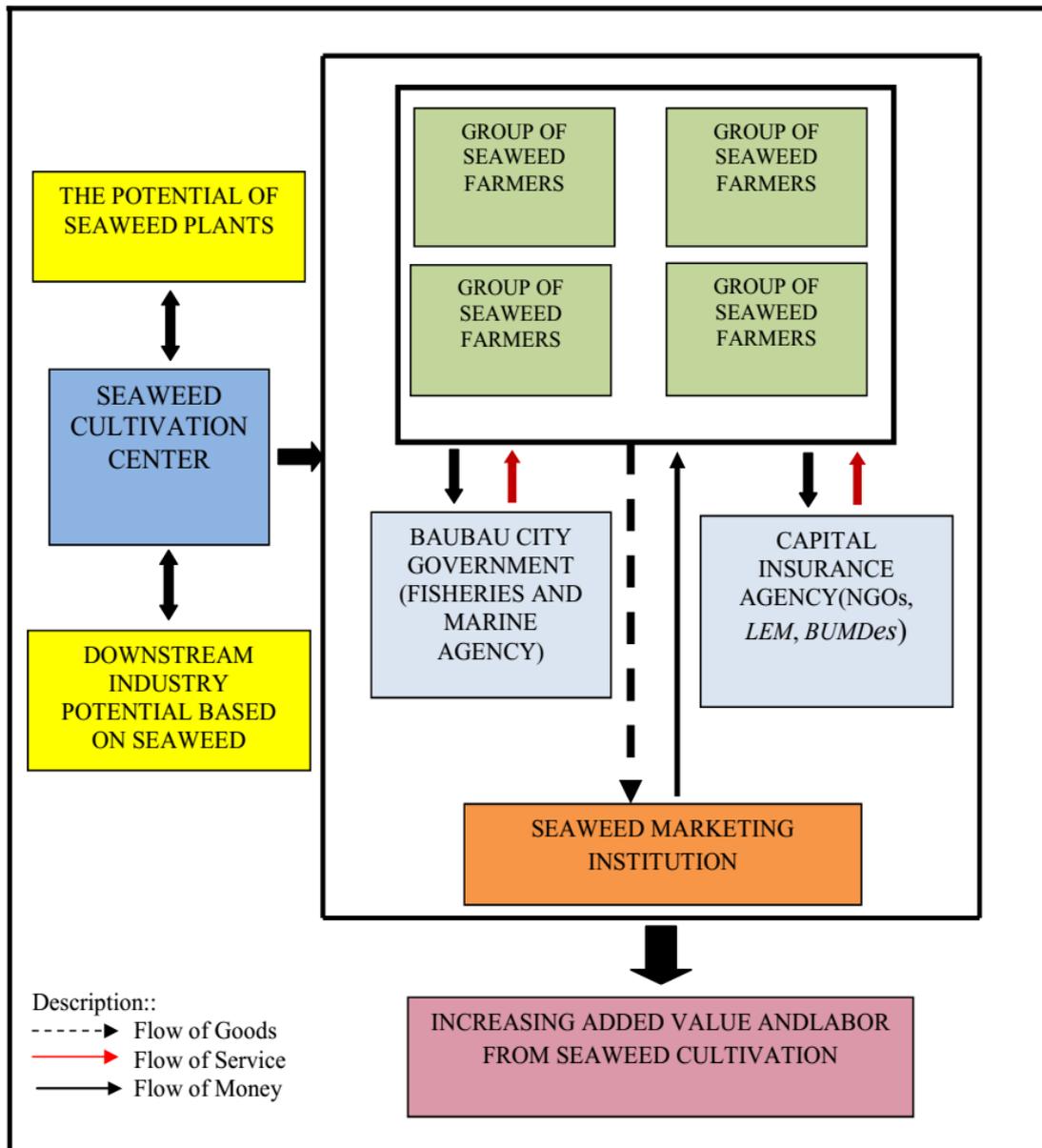


Figure 2 – Institutional Model of Seaweed Agribusiness in Lea-Lea District, Baubau City

By looking at Figure 2, it is known that the on-farm institutional model in Lea-Lea District of Baubau City also has 4 (four) institutions, namely; (1) seaweed farmer groups, (2) Baubau City Government institution which in this case is the Work Unit of Regional Apparatus that is responsible for developing seaweed businesses, namely; Marine and Fisheries Agency of Baubau City; (3) the capital insurance agency which in this case is the NGOs, LEM, and BUMDes; and (4) seaweed marketing institutions.

The results and data collection of this study revealed that the institutional model of seaweed agribusiness marketing in Lea-Lea District of Baubau City is established by several components as illustrated in this following Figure 3.

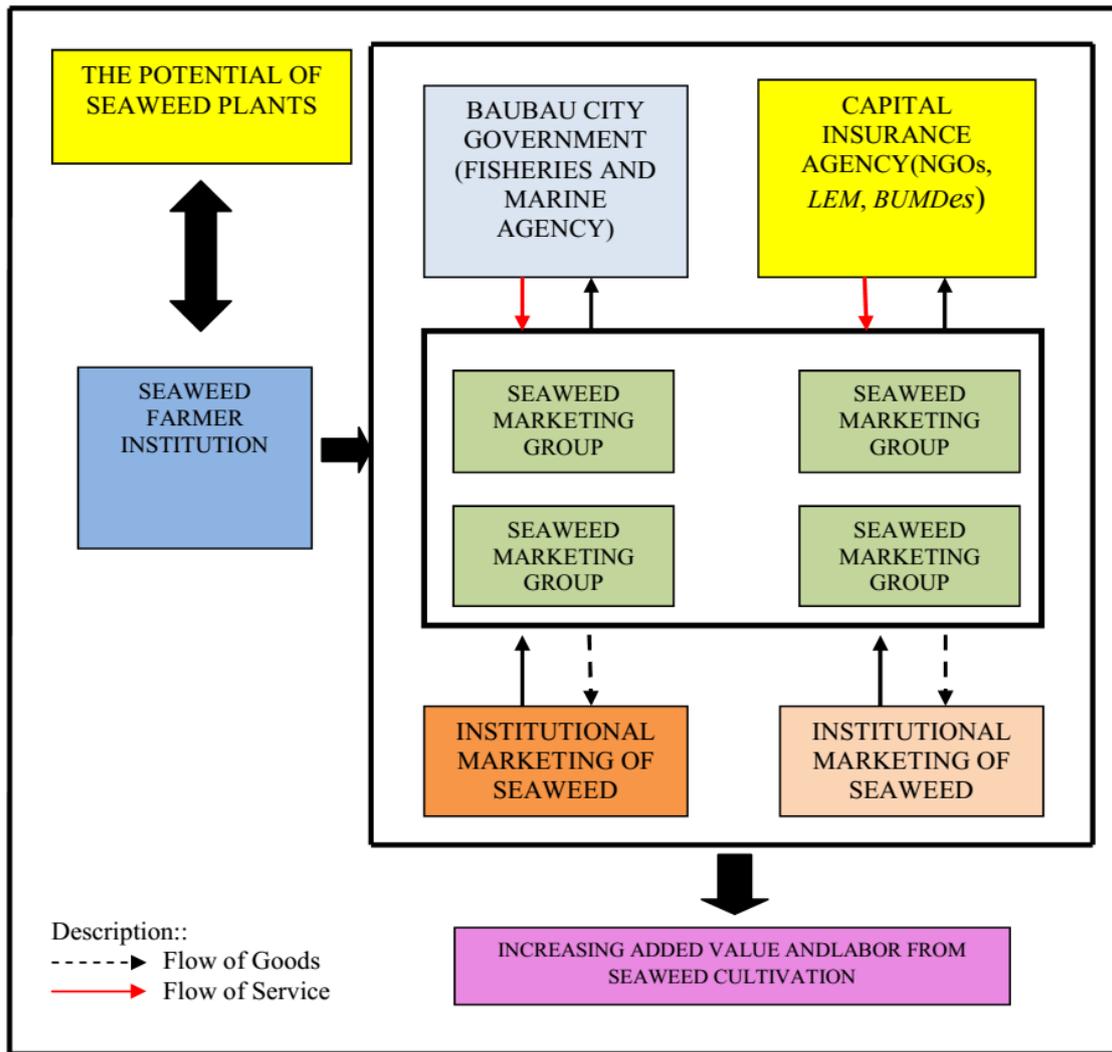


Figure 3 – Institutional Model of Seaweed Marketing in Lea-Lea District, Baubau City

As presented in Figure 3, the institutional model of seaweed marketing in Lea-Lea District of Baubau City includes 5 (five) institutions such as (1) seaweed farmer groups institutions, (2) Baubau City Government institution which in this case is the Work Unit of Regional Apparatus that is responsible for developing seaweed businesses, namely; Marine and Fisheries Agency of Baubau City; (3) the capital insurance agency which in this case is the NGOs, *LEM*, and *BUMDes*; (4) universities and Research and Development institutions, and (5) traders.

The measurements of perspective performance obtained using balance scorecard in this study are as follows:

Table 1 – Assessment Criteria for Financial Perspective

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Liquidity Ratio	Decrease	Bad	1
		Stable	Sufficient	2
		Increase	Good	3
2	Activity Ratio	Decrease	Bad	1
		Stable	Sufficient	2
		Increase	Good	3
3	Profitability ratio	Decrease	Bad	1
		Stable	Sufficient	2
		Increase	Good	3

Table 2 – Assessment Criteria for Customer Perspective

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Seaweed Quality	Very Bad	Very bad	1
		Bad	Bad	2
		Sufficient	Sufficient	3
		Good	Good	4
		Very good	Very good	5
2	Stock Availability	Very Unavailable	Very bad	1
		Not available	Bad	2
		Sufficient	Sufficient	3
		Available	Good	4
		Very Available	Very good	5
3	Moisture	Very Bad	Very bad	1
		Bad	Bad	2
		Sufficient	Sufficient	3
		Good	Good	4
		Very good	Very good	5

Table 3 – Assessment Criteria for Internal Business Process Perspective

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Sales Level	Decrease	Bad	1
		Stable	Sufficient	2
		Increase	Good	3
2	Product Defect Rate	Decrease	Bad	1
		Stable	Sufficient	2
		Increase	Good	3

Table 4 – Assessment Criteria for Learning and Growth Perspective

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Labor Productivity	Decrease	Bad	1
		Stable	Sufficient	2
		Increase	Good	3
2	Job Satisfaction Level	Very Dissatisfied	Very bad	1
		Not satisfied	Bad	2
		Sufficient	Sufficient	3
		Satisfied	Good	4
		Very satisfied	Very good	5

The calculation of financial perspective performance that is done using a liquidity ratio indicator showed that in 2017, the institutional liquidity ratio of seaweed agribusiness in Lea-Lea District of Baubau City was 1.21% while in 2018 was 1.18%. This indicates that there was a decrease in the liquidity ratio of seaweed agribusiness in 2017-2018. Based on the score assessment criteria, this indicator is classified as Bad and has a value of 1.

The calculation of financial perspective performance using activity ratio indicator pointed out that in 2017, the institutional activity ratio of seaweed agribusiness in Lea-Lea District of Baubau City was 2.26 or equal to 2 times while in 2018, it was 2.67 or equal to 2 times. This emphasizes that there was no increase or decrease in the ratio of seaweed agribusiness activity in 2017-2018. Based on the score assessment criteria, this indicator is Sufficient and is given a value of 2.

The results of financial perspective performance that is calculated using profitability ratio proved that in 2017, the profitability ratio of seaweed agribusiness in Lea-Lea District of Baubau City was 46.22% while in 2018 was 49.55%. This shows that there is an increase in the profitability ratio of seaweed agribusiness from 2017 to 2018. Based on this assessment, this indicator is classified as Good and has a value of 3.

The calculation recapitulation of financial perspective performance was done using 3 (three) indicators which include liquidity ratio, activity ratio, and profitability ratio of seaweed agribusiness institutions in Lea-Lea District of Baubau City. The recapitulation can be seen in Table 5 as follows.

Table 5 – Results Recapitulation of Financial Perspective Performance in Seaweed Agribusiness

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Liquidity Ratio	Decrease	Bad	1
2	Activity Ratio	Stable	Sufficient	2
3	Profitability ratio	Increase	Good	3

Source: Analysis Result, May 2019.

Based on the calculation of financial perspective performance of seaweed agribusiness in Lea-Lea District, Baubau City, there are 2 (two) indicators that have a value of 3 (Good), namely; liquidity ratio and profitability ratio. The activity ratio is known to have a value of 2 (Sufficient). These results underline that, in general, the financial performance of seaweed agribusiness in Lea-Lea District, Baubau City still not in excellent condition.

The customer perspective performance that is calculated using seaweed quality indicator explains that the perception of seaweed quality produced on seaweed agribusiness institutions in Lea-Lea District, Baubau City is 0.55. This reveals that the result of seaweed quality perception is on sufficient criteria. By that, based on the score assessment criteria, this indicator can be said as sufficient and is given a value of 3.

The calculation of customer perspective performance that is done using stock availability indicator implies that the perception of the seaweed stock availability in Lea-Lea District, Baubau City is 0.62. This means that the assessment of stock availability is on sufficient criteria and has a value of 3.

The customer perspective performance that is assessed using seaweed moisture indicator describes that the perception of seaweed moisture produced on illustrates agribusiness institution in Lea-Lea District of Baubau City is 0.65. This points out that the result of the assessment is on sufficient criteria. Therefore, this indicator is classified as Sufficient and is given a value of 3.

The calculation results of customer perspective performance were obtained using 3 (three) indicators known as seaweed quality, seaweed stock availability, and seaweed moisture. The results can be seen in this following Table 6.

Table 6 – Results Recapitulation of Customer Perspective Performance in Seaweed Agribusiness

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Quality	Sufficient	Sufficient	3
2	Stock Availability	Sufficient	Sufficient	3
3	Moisture	Sufficient	Sufficient	3

Source: Analysis Result, May 2019.

Referring to the calculation of customer's perspective performance in seaweed agribusiness, there are 3 (three) indicators used in Lea-Lea District of Baubau City such as seaweed quality, availability of stock, and moisture. All of which have a value of 3 (sufficient). This indicates that, in general, the customer's perspective of seaweed agribusiness in Lea-Lea District of Baubau City is sufficient and still cannot be considered as good.

The internal business process perspective performance in this study was measured using 2 (two) indicators. The first is the development of seaweed sales level and the second is the development of seaweed product defect rates. This indicator was examined by the upward or downward trend in the last 2 (two) years. The results of the calculation for each indicator are:

The results of the calculation of internal business process perspective performance by using sales level indicator illustrate that in 2017, the average monthly turnover of sales obtained by seaweed farmers in Lea-Lea District of Baubau City was IDR 1,500,000,-/month. Meanwhile, the average monthly sales turnover obtained by seaweed farmers in Lea-Lea District of Baubau City in 2018 was IDR 2,200,000,-/month. This means that there is an increase in the average sales of seaweed agribusiness in Lea-Lea District of Baubau City from 2017 to 2018. Thus, based on the score assessment, this indicator is classified as Good and given a value of 3.

The results of the calculation of internal business process perspective using the indicator of seaweed products defect rates point out that in 2017, the product defect rates in Lea-Lea District of Baubau City was 12%/production while in 2018 was 13.5%/production. This shows that there was an increase in the average level of product defect rates produced by seaweed agribusiness institutions in Lea-Lea District of Baubau City from 2017 to 2018. By that, based on the score assessment criteria, this indicator is in Bad criteria and has a value of 1.

The performance of the internal business process perspective of seaweed agribusiness institutions in Lea-Lea District, Baubau City was measured using 2 (two) indicators such as the sales level and the product defect rates. The results can be seen in Table 7 below.

Table 7 – Results Recapitulation of Internal Business Process Perspective Performance in Seaweed Agribusiness

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Sales Level	Increase	Good	3
2	Product Defect Rates	Increase	Bad	1

Source: Analysis Result, May 2019.

Based on the recapitulation of the results, it shows that the score of sales level is increasing. It also can be seen that this indicator gets a value of 3 (good). As for the calculation of product defect rates, the score also in the criteria of Increase so that the product defect rates is given a value of 1 (bad). This implies that, in general, the performance of the internal business process perspective of the seaweed agribusiness in Lea-Lea District, Baubau City still not in good status.

The calculation of the learning and growth perspective in this study was measured using 2 (two) indicators, namely; the level of labor productivity and the level of job satisfaction of the workforce. Labor productivity indicator was measured by the upward or downward trend in the last 2 (two) years while the indicator of job satisfaction was measured by looking at the workforce's perception of job satisfaction. The results of the calculation for each indicator can be seen in this following section:

The calculation of learning and growth perspective performance using the indicator of labor productivity level points out that in 2017, the average labor productivity in one harvest (1 month) was 28.57/month. While on the other hand, the average monthly labor productivity in 2018 was 28.57/month. This indicates that from 2017 to 2018, there is no increase or decrease in the average labor productivity of the seaweed agribusiness in Lea-Lea District of Baubau City. Based on the score assessment criteria, this indicator is classified as Sufficient with a score of 2.

The calculation of the learning and growth perspective performance done using the indicator of job satisfaction level shows that the job satisfaction of the workers in seaweed agribusiness institutions in the Lea-Lea District of Baubau City is equal to 0.59. This illustrates that the assessment of job satisfaction level in seaweed agribusiness institutions resulted in a Sufficient status. By that, this indicator belongs to the Sufficient criteria and is given a value of 3.

The calculation of learning and growth perspective performance in seaweed agribusiness institutions in Lea-Lea District of Baubau City was done using 2 (two) indicators; the level of labor productivity and the job satisfaction of the workers. The results can be seen in Table 8 as follows.

Table 8 – Results Recapitulation of Learning and Growth Perspective Performance in Seaweed Agribusiness

NO	INDICATOR	SCORE	CRITERIA	VALUE
1	Labor Productivity	Sufficient	Sufficient	3
2	Job Satisfaction Level	Sufficient	Sufficient	3

Source: Analysis Result, May 2019.

Looking at the recapitulation of the results above, it can be said that the seaweed agribusiness institutions in Lea-Lea District, Baubau City has a Sufficient score of productivity and job satisfaction. Therefore, this indicator has a score of 3 (three). This underlines that, in general, the performance of learning and growth perspective on seaweed agribusiness institutions in Lea-Lea District of Baubau City is sufficient but still not in the category of Good.

CONCLUSION

Overall, there are 4 (four) perspectives used in the calculation of the balance scorecard. Those are financial perspective, customer perspective, internal business process perspective, and learning and growth perspective in seaweed agribusiness institutions in Lea-Lea District, Baubau City. The results provide an indication that the institutional performance of the seaweed agribusiness is still not in good criteria so that in the future, it is important to reform an institutional model for the seaweed agribusiness to improve the institutional performance and to provide added value for seaweed agribusiness actors in Lea-Lea District of Baubau City.

The institutional development model of seaweed agribusiness is expected to be able to improve the institutional performance of seaweed agribusiness at the research site.

REFERENCES

1. Syahza, A. (2011). Model Kelembagaan Ekonomi Perkebunan Kelapa Sawit. *Jurnal Manajemen Usahawan Indonesia*, Vol. 40. Nomor 2, 1-28.
2. Rozikin, Zainur. (2015). Model Pengembangan Kelembagaan Agribisnis Untuk Memberdayakan Petani Miskin Berbasis Modal Sosial. *Jurnal Teknologi dan Manajemen Informatika*. Volume 1, Nomor 1, 19-24.
3. Candra Nuraini., Dwidjono H. D., Masyhuri., & Jamhari. (2016). Model Kelembagaan Pada Agribisnis Padi Organik Kabupaten Tasikmalaya. *Jurnal AGRARIS*, Vol. 2, No.1, 10-16.
4. Raharjo, Basuki. (2009). Peran Kelembagaan di Sektor Pemasaran Hasil-Hasil Perikanan. *PENA Akuatika*. Volume 1. Nomor 1, 44-54.
5. Hasibuan, Abd. Muis., Listyati, Dewi., & Pranowo, Dibyo. (2013). Studi Model Kelembagaan dalam Agribisnis Karet. *SIRINOV*, Vol. 1. No. 2, 89-97.
6. Kusnandar., Padmaningrum, D., Rahayu, W., & Widodo, A. (2013). Rancang Bangun Model Kelembagaan Agribisnis Padi Organik Dalam Mendukung Ketahanan Pangan. *Jurnal Ekonomi Pembangunan*, Vol. 14. No. 1, 92-101.
7. Prasetyatno, Rahmat Hidayat., & Utami, Dyah Issa. (2011). Pengukuran Kinerja Perusahaan Dengan Metode Balance Scorecard. *Performa*, Vol. 10. No. 2, 71-82.
8. Ahmad, Fadloli., Wijaya, Sudarma., & Nugraha, Adia. (2016). Pengukuran Kinerja Perusahaan Pertanian di Lembang Jawa Barat dengan Pendekatan Balance Scorecard. *JIIA*, Vol. 4. No. 2, 134-144.
9. Farooq, Ayesha., & Hussain, Zareen. 2011. Balance Scorecard Perspective on Change and Performance. *Procedia Social and Behavioral Science*. 7thInternational Strategic Management Conference, Vol. 24, 754-768.
10. Khatoun, Saira., & Farooq, Ayesha. 2014. Balance Scorecard to Measure Organizational Performance: A Case Based Study. *The International Journal of Business and Management*, Vol. 2. Issue 9, 106-113.

DOI 10.18551/rjoas.2019-08.19

DEINDUSTRIALIZATION AMONG ASEAN COUNTRIES AND RELATED AFFECTING FACTORS

Sari Nilam Anggar*, Syahrudin, Lecturers
University of Kutai Kartanegara, Tenggarong, Indonesia
*E-mail: nilamanggarsari@gmail.com

ABSTRACT

This study aims to identify the causes of deindustrialization among ASEAN countries with years of analysis from 2000 to 2017. Secondary data in this study were obtained from CEIC and the analysis method used an econometric model approach to panel data. The variable used to describe deindustrialization in this study (dependent variable) is manufacturing value added (MANVASUR) and the share of manufacturing in GDP (MANSHA). The results of the analysis show that per capita income, population, and economic openness have a significant effect on manufacturing value added (MANVASUR), while the share of manufacturing in GDP (MANSHA) is influenced by the wealth of natural resources, population, and economic openness. The population and per capita income of ASEAN member countries are positively related to the added value of the industrial sector, while economic openness is negatively related. This means that the more open the economy of a country, on the contrary the value added of the industrial sector actually decreases. Economic openness and natural resource wealth of ASEAN countries are positively related to the contribution (share) of the industrial sector to GDP, while the population is negatively marked by contribution (share) industrial sector to GDP. That means, the fewer the population, the less human resources involved in industry and industry will involve a lot of technology (capital intensive).

KEY WORDS

Deindustrialization, manufacturing, population, economic openness, income per capita.

As has happened in many developed countries, the process of transforming the economic structure has brought the success of quality economic growth (INDEF, 2017). The transformation of the economic structure here is the process of change from an agrarian economic structure to an industrial economic structure or also called industrialization. The opposite of industrialization is deindustrialization; Blackeby (1979) in Jalilian and Weiss (2000) states that deindustrialization is a decrease in the value added of the manufacturing sector or a decrease in the contribution of the manufacturing sector to national income. Deindustrialization in general is also experienced by countries in the world. The US in the late 1950s and Britain experienced de-industrialization since the 1970s. But in developed countries deindustrialization takes place as technology advances and innovations, so the contribution of the manufacturing industry to economic growth remains high (positive deindustrialization). Different situations experienced by developing countries. Rodrik (2015) revealed that developing countries experienced symptoms of deindustrialization without significant progress in the use of technology so that this condition was called negative deindustrialization.

The ASEAN economy is among the 7 largest in the world economy. The average economic growth of 10 ASEAN members in 2017 was estimated at 5%, up from the previous year which reached 4.8%. This condition exceeds global growth in 2017 which only reached 3.6%. However, ASEAN faces challenges that have the potential to hinder its stated objectives; one of the causes is the presence of GDP per capita disparity among ASEAN member countries. The disparity is also caused by the different industrialization processes among ASEAN member countries. Data from the last 17 years among ASEAN countries shows that in 2000/2001, for example, the contribution of industry could reach 25-30% of GDP, but in 2017 the contribution reached a maximum of only 27%. Indonesia, for example, experienced deindustrialization that was too early and the decline in its contribution was quite

large at 10%, Malaysia experienced a decline of 8%, Singapore 7%, and the Philippines 5%. Some other countries have experienced a significant increase in contributions such as Myanmar, which in 2000 was only 7.2% in 2017 reaching 23.9%. While countries like Laos and Cambodia, the contribution of the industrial sector to GDP is quite stable.

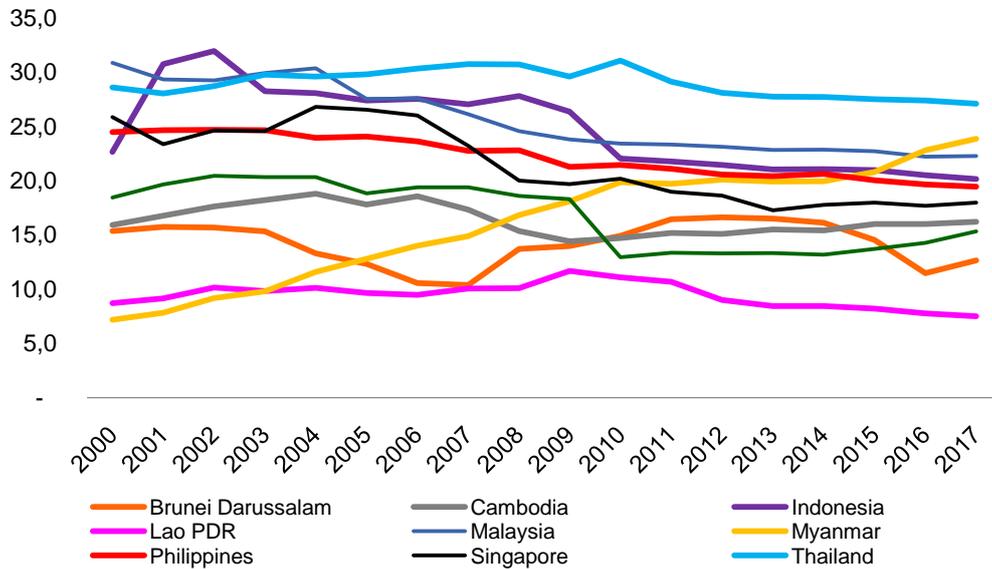


Figure 1 – Share of Manufacturing Value Added in GDP ASEAN Countries, % (Source: CEIC, 2018)

The difference in the deindustrialization process among ASEAN members can lead to a gap in the acceleration of development in the Southeast Asia region. Thus the purpose of this study is to identify the causes of deindustrialization among ASEAN countries.

METHODS OF RESEARCH

The data used in this study comes from CEIC. The data type is panel data. According to Mudradjat (2011), the data panel is a combination of time series and cross-site data. In this research panel sample data used is 18 years from 10 ASEAN member countries, namely data from 2000 to 2017.

This study used two econometric model approaches to analyze the data, namely the panel regression analysis model with several independent variables and dependent variables. The variables used in the time series regression model are 4 independent variables consisting of Gross Domestic Product (GDP), population, exchange rate, and consumer price and 1 dependent variable is the number of passengers. The panel regression model uses 2 independent variables, namely the Gross Domestic Product (GDP) and the population, and passenger as the dependent variable.

Descriptive data basically only presents numerically the size of the mean, standard deviation, and distribution of a data. The statistical description of the variables used in this study is:

$$\text{First Model: } \text{MANVASUR} = f(\text{GDPCPTCUR}, \text{POP}, \text{OPENCUR}, \text{EXPAGRI})$$

$$\text{Second Model: } \text{MANSHA} = f(\text{GDPCPTCUR}, \text{POP}, \text{OPENCUR}, \text{EXPAGRI})$$

Where: MANVASURES - Industrial Value Added (Manufactures Value Added) according to current prices (million US\$); MANSHA - Industrial Sector Share to GDP according to current price (%); GDPCPTCUR - Per capita income with a proxy for Gross Domestic Product per capita according to current prices (US\$); POP - Total of Population; OPENCUR - Economic Openness with a proxy for export and import contributions to GDP current price (%);

EXPAGRI - Export of Agricultural Product Contribution to GDB current price (5);
 LNGDPCPTCUR - Natural Logarithm of the GDPCPTCUR Variable.

RESULTS AND DISCUSSION

Based on the structure of the first model (MANVACUR), in order to obtain the best panel regression estimation model, it is necessary to select an estimation model between Pooled Least Squares (PLS), Fixed Effect (FE) and Random Effect (RE) models. The selection of the estimation model uses the Chow Test, Breusch and Pagan Results of the Lagrangian Multiplier Test, and the Hausman Test where a summary of the comparisons between models can be seen in table 1.

Table 1 – Comparison between FE, RE, and PLS Models

Variable	fe	re	ols
lngdpcptcur	7.3e+03	2.1e+04	1.2e+04
	2.2e+03	2.1e+03	1.5e+03
pop	0.0028	0.0009	0.0005
	0.0002	0.0001	0.0000
opencur	-1.2e+04	-1.4e+04	3.4e+03
	4.5e+03	5.0e+03	2.6e+03
expagri	-2.0e+02	-1.1e+03	2.1e+03
	415.5977	532.1551	745.3960
_cons	-1.7e+05	-1.6e+05	-9.8e+04
	1.4e+04	1.8e+04	1.1e+04
N	180	180	180
r2	0.7679		0.7182
r2_a	0.7498		0.7118

Legend: b/se

Based on the summary of the model, FE model has adjusted R2 (r2-a) greater than PLS, which is equal to 0.7498. This means that per capita income (GDPCPTUR), population (POP), economic openness (OPENCUR) and natural resource wealth (EXPAGRI) are able to explain the Value Added of the Industrial Sector (MANVACUR) of 74.98 percent and the rest explained by other factors outside the model. Based on the results of the suitability testing of the model, the appropriate model to explain Manufacture Value Added in ASEAN is Fixed Effect (Table 2). Just like in the normal liner regression, in panel data regression the result also needs to be evaluated. The stages of evaluating the results carried out include:

Table 2 – Fixed Effect Model Output

Fixed-effects (within) regression	Number of obs	=	180	
Group variable: id	Number of groups	=	10	
R-sq: within = 0.7679	Obs per group: min	=	18	
between = 0.6358	avg	=	18.0	
overall = 0.5444	max	=	18	
corr(u_i, Xb) = -0.9827	F(4,166)	=	137.32	
	Prob > F	=	0.0000	

manvacur	Coef.	Std. Err.	t P> t [95% Conf. Interval]	
lngdpcptcur	7297.479	2168.602	3.37 0.001	3015.882 11579.08
pop	.0027691	.0001828	15.15 0.000	.0024081 .00313
opencur	-11865.07	4457.767	-2.66 0.009	-20666.3 -3063.847
expagri	-202.5683	415.5977	-0.49 0.627	-1023.107 617.9703
_cons	-167094.2	14046.02	-11.90 0.000	-194826.1 -139362.4

sigma_u	167449.27			
sigma_e	11296.81			
rho	.99546922	(fraction of variance due to u_i)		

F test that all u_i=0:	F(9, 166) =	77.00	Prob > F = 0.0000	

Testing the assumption of the regression model, first of all, the error of the model must be normally distributed, the variance is constant (homoscedasticity), there is no multicollinearity between the independent variables and no autocorrelation occurs. According to Baltagi (1981), the basis of forming a panel model still uses Least Square. Therefore, in evaluating the results of the simultaneous-panel equation model can be done through the Least Square approach. For the random effects (RE) model the estimation method used is Generalized Least Square (GLS). So in the RE model there is no need for heteroscedasticity and autocorrelation testing. Based on the selection of the model above, the Fixed Effect (FE) model is chosen, so all three assumptions of the model must be done. The results of testing the classical assumptions violate the assumption of the absence of multicollinearity but there are heteroscedasticity and autocorrelation so to overcome violations in the Fixed Effect model estimation models are used with General Least Squared (GLS) (Table 3).

Table 3 – Fixed Effect Model Output with GLS

Cross-sectional time-series FGLS regression						
Coefficients: generalized least squares						
Panels: homoskedastic						
Correlation: no autocorrelation						
Estimated covariances	=	1	Number of obs	=	180	
Estimated autocorrelations	=	0	Number of groups	=	10	
Estimated coefficients	=	14	Time periods	=	18	
Log likelihood	=	-1927.931	Wald chi2(13)	=	3125.39	
			Prob > chi2	=	0.0000	
manvacur	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lngdpcptcur	7297.479	2082.561	3.50	0.000	3215.734	11379.22
pop	.0027691	.0001756	15.77	0.000	.0024249	.0031132
opencur	-11865.07	4280.9	-2.77	0.006	-20255.48	-3474.663
expagri	-202.5683	399.1085	-0.51	0.612	-984.8066	579.67
id						
2	-6872.406	10791.3	-0.64	0.524	-28022.96	14278.14
3	-511842.7	45592.49	-11.23	0.000	-601202.4	-422483.1
4	6543.587	8894.621	0.74	0.462	-10889.55	23976.72
5	-4392.738	9260.775	-0.47	0.635	-22543.52	13758.05
6	-111712.9	15906.94	-7.02	0.000	-142889.9	-80535.85
7	-196925.6	20403.5	-9.65	0.000	-236915.8	-156935.5
8	57726.58	12354.45	4.67	0.000	33512.32	81940.85
9	-83544.69	15849.22	-5.27	0.000	-114608.6	-52480.8
10	-195443.7	21580.72	-9.06	0.000	-237741.2	-153146.3
_cons	-62447.75	21152.95	-2.95	0.003	-103906.8	-20988.73

Feasibility Test Model includes Overall Test (F-test), Partial Test (t-test) and Goodness of Fit Test (coefficient of determination). The Goodness of fit test is used to measure how much variation in the value of dependent variables can be explained by variations in the value of the independent variable. This test is done by looking at R-squared from the estimated regression results. As with simple R-squared regression models it is useful to see the ability of independent variables to explain dependent variables. In the fixed effect model there are three types of R-squared, namely within, between regions (between) and the whole (overall). Based on Table 2 (Fixed Effect), it can be seen that the R-square value of within, between and overall is quite large. Sequentially the R-square within value is 0.7679 (76.79 percent), the R-square between is 0.6358 (63.58 percent) and the R-square overall is 0.5444 (54.44 percent). R-Square within 0.7679 means that the value added of the industrial sector in ASEAN member countries is able to be explained by the model of 76.79 percent and the rest is explained by other variables outside the model. The R-Square between 0.6358 means that the value added of the industrial sector among ASEAN member countries is only able to be explained by the model of 63.58 percent and the rest is explained by other independent variables outside the model. Then the R-square overall is 0.5444 which means that overall the value added of the industrial sector of ASEAN member countries is explained by the model of 54.44 percent and the rest is explained by other independent variables outside the model.

Table 2 is the provisional result of the fixed effect model with the OLS estimation method. Based on the table, it can be seen that F count is 137.32 or Prob> F is 0.0000.

Because the calculated F value is greater than F table or a significant value smaller than $\alpha = 1$ percent ($0,000 < \alpha$) then H_0 is rejected or accepts H_1 . This means that simultaneously the per capita income (GDPCPTCUR), population (POP), economic openness (OPENCUR) and natural resource wealth (EXPAGRI) have a significant effect on the added value of the industrial sector (MANVACUR). This shows that the independent variables used in this study are clear explanations on dependent variables and also show that the model is feasible to use.

Partial test is used to find out the effect of partial variables partially significantly (real) effect on dependent variables. To find out the results of the partial test can be seen from the t-value calculated or the value $P > |t|$ If the t-value is greater than t-table or $P > |t|$ smaller than $\alpha = 1$ percent, so the independent variable is significant in explaining dependent variables. Based on Table 3 above, the value of $P > |t|$ of the two independent variables the value is 0.000 or more than $\alpha = 1$ percent. This means that per capita income, population, and economic openness have a significant effect on the value added of the industrial sector, while natural resource wealth does not affect it. Based on Table 2, there has been a violation of the assumption that there is no autocorrelation and heteroscedasticity, so that it is overcome by the GLS estimation method. Estimated results with GLS do not affect the results of the feasibility test model.

Based on model selection and model evaluation, it was found that the model suitable for panel data in this analysis was Fixed Effect Model with GLS estimation method. The regression output of the Fixed Effect model with the GLS estimation method as shown in Table 3. From Table 3, it can be seen that the independent variable per capita income (GDPCPTCUR), population (POP), and economic openness (OPENCUR) have a significant effect on industrial sector value added (MANVACUR). The regression model above can be written in the econometric equation as follows:

$$MANVACUR_{it} = ID_{id} - 62.447,75 + 7.297,479(LNGDPCPTCUR_{it}) + 0,0027691(POP_{it}) - 11.865,07 (OPENCUR_{it}) - 202,5683(EXPAGRI_{it}) + v_{it}$$

ID variable is the location of 10 ASEAN member countries with different values according to location. The above model indicates that the independent variable income per capita (GDPCPTCUR), population (POP), and economic openness (OPENCUR) have a significant effect on the added value of the industrial sector (MANVACUR). From the independent variables that have a significant effect the coefficient is varied. The number of population and income per capita are positive. This provides an explanation that the more the population increases and the per capita income of ASEAN member countries increases, the added value of the industrial sector will also increase assuming the other variables are constant or vice versa. Then the coefficient of economic openness is negative, meaning that the more open the economy of a country, on the contrary the value added of the industrial sector actually decreases. Furthermore, natural resource wealth (EXPAGRI) has no effect on changes in the value added of the industrial sector.

The above model can be written according to each country and the difference is only in the intercept. The following models are presented according to ASEAN member countries.

Brunei Darussalam:

$$MANVACUR_{it} - 62.447.75 + 7.297,479(LNGDPCPTCUR_{it}) + 0,0027691(POP_{it}) - 11.865,07 (OPENCUR_{it}) - 202,5683(EXPAGRI_{it}) + v_{it}$$

Cambodia:

$$MANVACUR_{it} - 69.320,16 + 7.297,479(LNGDPCPTCUR_{it}) + 0,0027691(POP_{it}) - 11.865,07 (OPENCUR_{it}) - 202,5683(EXPAGRI_{it}) + v_{it}$$

Indonesia:

$$MANVACUR_{it} - 574.290,45 + 7.297,479(LNGDPCPTCUR_{it}) + 0,0027691(POP_{it}) - 11.865,07 (OPENCUR_{it}) - 202,5683(EXPAGRI_{it}) + v_{it}$$

Laos:

$$MANVACUR_{it} - 55.904,16 + 7.297,479(LNGDPCPTCUR_{it}) + 0,0027691(POP_{it}) - 11.865,07 (OPENCUR_{it}) - 202,5683(EXPAGRI_{it}) + v_{it}$$

Malaysia:

$$\text{MANVACUR}_{it} - 66.840,49 + 7.297,479(\text{LNGDPCPTCUR}_{it}) + 0,0027691(\text{POP}_{it}) - 11.865,07 (\text{OPENCUR}_{it}) - 202,5683(\text{EXPAGRI}_{it}) + v_{it}$$

Myanmar:

$$\text{MANVACUR}_{it} - 174.160,65 + 7.297,479(\text{LNGDPCPTCUR}_{it}) + 0,0027691(\text{POP}_{it}) - 11.865,07 (\text{OPENCUR}_{it}) - 202,5683(\text{EXPAGRI}_{it}) + v_{it}$$

Philippines:

$$\text{MANVACUR}_{it} - 259.373,35 + 7.297,479(\text{LNGDPCPTCUR}_{it}) + 0,0027691(\text{POP}_{it}) - 11.865,07 (\text{OPENCUR}_{it}) - 202,5683(\text{EXPAGRI}_{it}) + v_{it}$$

Singapore:

$$\text{MANVACUR}_{it} - 4.721,17 + 7.297,479(\text{LNGDPCPTCUR}_{it}) + 0,0027691(\text{POP}_{it}) - 11.865,07 (\text{OPENCUR}_{it}) - 202,5683(\text{EXPAGRI}_{it}) + v_{it}$$

Thailand:

$$\text{MANVACUR}_{it} - 145.992,44 + 7.297,479(\text{LNGDPCPTCUR}_{it}) + 0,0027691(\text{POP}_{it}) - 11.865,07 (\text{OPENCUR}_{it}) - 202,5683(\text{EXPAGRI}_{it}) + v_{it}$$

Vietnam:

$$\text{MANVACUR}_{it} - 257.891,45 + 7.297,479(\text{LNGDPCPTCUR}_{it}) + 0,0027691(\text{POP}_{it}) - 11.865,07 (\text{OPENCUR}_{it}) - 202,5683(\text{EXPAGRI}_{it}) + v_{it}$$

The slope values of all countries are the same, but the intercept value varies between countries. Among the ASEAN member countries, Indonesia has the highest negative intercept, which is 574,290.45. This value implies an understanding that industrial sector added value will decrease by 574,290.45 million US\$ if per capita income, population, economic openness, and export of natural resource. This is understandable because the main industrial raw material in Indonesia comes from the agricultural sector natural resources (EXPAGRI), if more and more Indonesian natural resources are exported it will minimize added value from the industrial sector. While the smallest negative intercept value is owned by Singapore, which only reaches 4,721.17. The small condition of Singapore's intercept value is in line with the advanced economic conditions among ASEAN countries.

Based on the structure of the second model (MANSHA), in order to obtain the best panel regression estimation model, it is necessary to select an estimation model between the Pooled Least Squares (PLS) model, Fixed Effect (FE) and Random Effect (RE). The selection of the estimation model uses the Chow Test, Breusch and Pagan Results of the Lagrangian Multiplier Test, and the Hausman Test where a summary of the comparisons between models can be seen in Table 4 below.

Table 4 – Inter-Model Comparison (MANSHA)

Variable	FE	RE	PLS
lngdpcptcur	-0.6189	-1.6597	0.4491
	0.4517	0.3801	0.3167
pop	-0.0000	-0.0000	0.0000
	0.0000	0.0000	0.0000
opencur	5.1383	5.3900	2.6963
	0.9286	0.8953	0.5373
expagri	0.3491	0.4224	0.5438
	0.0866	0.0889	0.1535
_cons	26.4595	25.8648	8.8290
	2.9259	3.4051	2.3094
N	180	180	180
r2	0.3802		0.3673
r2_a	0.3317		0.3528

legend: b/se

Based on the summary of the model, model FE has adjusted R2 (r2-a) smaller than PLS, which is equal to 0.3317. Although the PLS Model has bigger adjusted R2 (r2-a) value, but in model testing the most suitable model is FE, that is why the model used is Fixed Affect Model. Adjusted R2 (r2-a) value of 0.3317 means that per capita income (GDPCPTUR), population (POP), economic openness (OPENCUR) and natural resource wealth (EXPAGRI) are able to explain the Industrial Sector Share to the economy (MANSHA) of 33, 17 percent and the rest explained by other factors outside the model. Based on the results of the suitability of the model above, the appropriate model to explain the Industrial Sector Share of the economy in the ASEAN member countries is Fixed Effect.

Table 5 – Output of Fixed Effect Model

Fixed-effects (within) regression	Number of obs	=	180
Group variable: id	Number of groups	=	10
R-sq: within = 0.3802	Obs per group: min	=	18
between = 0.0903	avg	=	18.0
overall = 0.0516	max	=	18
corr(u_i, Xb) = -0.9249	F(4,166)	=	25.46
	Prob > F	=	0.0000

mansha	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lngdpcptcur	-.6189461	.4517339	-1.37	0.172	-1.51083	.2729383
pop	-1.58e-07	3.81e-08	-4.16	0.000	-2.34e-07	-8.31e-08
opencur	5.138312	.9285816	5.53	0.000	3.30496	6.971664
expagri	.3490793	.0865717	4.03	0.000	.1781558	.5200028
_cons	26.45953	2.925876	9.04	0.000	20.68281	32.23626

	sigma_u		16.069265
	sigma_e		2.3531985
	rho		.97900528 (fraction of variance due to u_i)

F test that all u_i=0:	F(9, 166) =	74.83	Prob > F = 0.0000
------------------------	-------------	-------	-------------------

Based on the selection of the Industrial Sector Share model on GDP above the appropriate model is Fixed Effect and the results of testing the classical assumption occur violation of assumptions namely the existence of heteroscedasticity and the existence of autocorrelation so to overcome violations in the Fixed Effect model, Estimation models with General Least Squared (GLS) was used.

Table 6 – Output of Fixed Effect Model with GLS

Cross-sectional time-series FGLS regression			
Coefficients: generalized least squares			
Panels: homoskedastic			
Correlation: no autocorrelation			
Estimated covariances	=	1	Number of obs = 180
Estimated autocorrelations	=	0	Number of groups = 10
Estimated coefficients	=	14	Time periods = 18
Log likelihood	=	-402.1613	Wald chi2(13) = 1258.68
			Prob > chi2 = 0.0000

mansha	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lngdpcptcur	-.6189461	.4338109	-1.43	0.154	-1.4692	.2313077
pop	-1.58e-07	3.66e-08	-4.33	0.000	-2.30e-07	-8.66e-08
opencur	5.138312	.8917392	5.76	0.000	3.390535	6.886089
expagri	.3490793	.0831369	4.20	0.000	.186134	.5120246
id						
2	-.0229353	2.247897	-0.01	0.992	-4.428732	4.382861
3	47.1213	9.49721	4.96	0.000	28.50711	65.73549
4	-5.590035	1.852807	-3.02	0.003	-9.22147	-1.958599
5	10.37166	1.929079	5.38	0.000	6.590737	14.15259
6	10.3374	3.313519	3.12	0.002	3.843025	16.83178
7	21.46859	4.250182	5.05	0.000	13.13839	29.79879
8	-5.99942	2.573511	-2.33	0.020	-11.04341	-.9554313
9	21.10452	3.301494	6.39	0.000	14.63371	27.57533
10	11.06501	4.495403	2.46	0.014	2.254181	19.87584
_cons	15.47392	4.406296	3.51	0.000	6.837743	24.11011

The feasibility test of the model in the panel data model uses the F test (overall test), t test (partial test) and goodness of fit test. As with ordinary linear regression models, the F test (overall test) is used to test the feasibility of a regression model as a whole, meanwhile T test used to answer problems, achieve goals and prove hypotheses. T Test (Partial test) also used to determine whether the independent variables partially have a significant effect (real) to dependent variables. The Goodness of fit test is used to measure how much variation in the value of dependent variables can be explained by variations in the value of the independent variable. This test is done by looking at R-squared from the estimated regression results. As with simple R-squared regression models, it is useful to see the ability of independent variables to explain dependent variables. In the fixed effect model there are three types of R-squared, namely within, between and overall.

Based on Table 5, it can be seen that the R-square value of within, between and overall is relatively small. It is probably due to the few observation series. Sequentially the within R-square the value is 0.3802 (38.02 percent), the between R-square is 0.0903 (9.03 percent) and the overall R-square is 0.0516 (5.16 percent). With the within R-Square 0.3802 means that the Industrial Sector Share of GDP in ASEAN member countries is only able to be explained by the model of 38.02 percent and the rest is explained by other variables outside the model. And then between R-Square 0.0903 means that the Industrial Sector Share of GDP among ASEAN member countries is only able to be explained by the model of 9.03 percent and the rest is explained by other independent variables outside the model. Then the overall R-square of 0.0516 implies that the whole Industrial Sector Share of the GDP of ASEAN member countries is only able to be explained by the model of 5.16 percent and the rest explained by other independent variables outside the model. Table 5 is the provisional result of the fixed effect model with the OLS estimation method. Based on the table, it can be seen that F count is 25.46 or Prob> F is 0.0000. Because the calculated F value is greater than F table or a significant value smaller than $\alpha = 1$ percent ($0,000 < \alpha$) then H_0 is rejected or in other word H_1 is accepted. This means that simultaneously the per capita income (GDPCPTCUR), population (POP), economic openness (OPENCUR) and natural resource wealth (EXPAGRI) have a significant effect on the Industrial Sector Share of GDP (MANSHA). This indicates that the independent variables used in this research is a clear explanation on dependent variables and also shows that the model is feasible to use.

Partial test is used to find out the effect of independent variables partially significantly (real) effect on dependent variables. To find out the results of the partial test can be seen from the t-value calculated or the value $P > |t|$ If the t-value is greater than t-table or $P > |t|$ smaller than $\alpha = 1$ percent, the independent variable is significant in explaining dependent variables. Based on Table 5 above, the value of $P > |t|$ of the two independent variables, the value is 0,000 or smaller than $\alpha = 1$ percent. This means that the population, economic openness and natural resource wealth have a significant effect on the Industrial Sector Share of GDP, while per capita income does not affect it. Based on Table 5 there has been a violation of assumptions, namely the existence of autocorrelation and heteroscedasticity, so that it is overcome by the GLS estimation method. Estimated results with GLS do not affect the results of the model feasibility test.

Based on model selection and model evaluation, it was found that the model suitable for panel data in this analysis was Fixed Effect Model with GLS estimation method. The regression output of the Fixed Effect model with the GLS estimation method as shown in Table 6. From Table 6 it can be seen that the independent variables, population (POP), economic openness (OPENCUR), and natural resource wealth (EXPAGRI) have a significant effect on the Share of Industrial Sector GDP (MANSHA). The regression model above can be written in the econometric equation as follows:

$$MANSHA_{it}ID_{id} + 15,47392 - 0,6189(LNGDPCPTCUR_{it}) - 0,000000158(POP_{it}) + 5,1383(OPENCUR_{it}) + 0,3491(EXPAGRI_{it}) + v_{it}$$

ID variable is the location of 10 ASEAN member countries with different values according to location. The model above implies that the independent variable population number (POP), economic openness (OPENCUR) and natural resource wealth (EXPAGRI)

have a significant effect on the Industrial Sector Share of GDP (MANSHA). From the independent variables that have a significant effect the coefficient is varied. Coefficient's economic openness and natural resource wealth are positive. This provides an explanation that the more open the economy and the increasing natural resource wealth of ASEAN member countries, the contribution (share) of the industrial sector to GDP will also be greater assuming other variables are constant or also vice versa. And then the coefficient of population number is negative, it means the more the population in a country, then the contribution (share) of industrial sector to GDP decreases or conversely the fewer the population, the greater the industrial sector share of GDP. This can be understood because the fewer the population, the less human resource will be used and the industry will be more capital intensive. Furthermore, per capita income does not affect the change in value added of the industrial sector.

As with the model of industrial value added, this model can be written according to each country and differences only in its intercept. The following models are presented according to ASEAN member countries.

Brunei Darussalam:

$$\text{MANSHA}_{it} = 15,4739 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Cambodia:

$$\text{MANSHA}_{it} = 15,4510 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Indonesia:

$$\text{MANSHA}_{it} = 62,5952 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Laos:

$$\text{MANSHA}_{it} = 9,8839 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Malaysia:

$$\text{MANSHA}_{it} = 25,8456 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Myanmar:

$$\text{MANSHA}_{it} = 25,81132 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Philippine:

$$\text{MANSHA}_{it} = 36,94251 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Singapore:

$$\text{MANSHA}_{it} = 9,4745 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Thailand:

$$\text{MANSHA}_{it} = 36,5784 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

Vietnam:

$$\text{MANSHA}_{it} = 26,5389 - 0,6189(\text{LNGDPCPTCUR}_{it}) - 0,000000158(\text{POP}_{it}) + 5,1383 (\text{OPENCUR}_{it}) + 0,3491(\text{EXPAGRI}_{it}) + v_{it}$$

The slope values of all countries are the same, but the intercept value varies between countries. Among these ASEAN member countries, Indonesia has the largest intercept,

which is equal to 62,5952. This value means that the industrial sector share of Indonesia's GDP will remain at 62.5952% assuming per capita income, population, economic openness, and exports of natural resource wealth unchanged. While the smallest intercept value is owned by Singapore, which only reaches 9.4745%. The small condition of Singapore's intercept means that Singapore's economy is highly dependent on the contribution of the Manufacturing Industry Sector. If the factors that influence the contribution of the manufacturing sector do not change, so the contribution of manufacturing will be relatively small compared to other countries in ASEAN. This is because Singapore is one of the high-tech manufacturing exporters and has a significant impact on the Asia Pacific manufacturing industry.

CONCLUSION

Based on the selection of the model, the appropriate model to explain the factors that influence the added value and the contribution of the industrial sector to GDP is the Fixed Effect Model Panel.

Per capita income, population, and economic openness have a significant effect on the added value of the industrial sector. While the contribution of the industry sector to GDP is influenced by the wealth of natural resources, population, and economic openness.

The population and per capita income of ASEAN member countries are positively related to the added value of the industrial sector, while economic openness is negatively related. This means that the more open the economy of a country, on the contrary the value added of the industrial sector actually decreases.

Economic openness and natural resources of ASEAN countries are positively related to the contribution (share) of the industrial sector to GDP, while the population is negatively marked by the contribution (share) of the industrial sector to GDP. That means, the fewer the population, the less human resources involved in industry and industry will involve a lot of technology (capital intensive).

REFERENCES

1. Alderson, A. 1997. Globalization and Deindustrialization: Direct Investment and the Decline of Manufacturing Employment in 17 OECD Nations. *Journal of World-System Research*. Vol 3(1):1-34
2. Andriyani, V.E., 2018. Identification of Premature Deindustrialization and Its Acceleration in Indonesia (Peruod 1986-2015). *Jurnal Ekonomi dan Kebijakan Pembangunan* 78-101.
3. Asyraf, T.M. 2019. Is Malaysia Experiencing Premature Deindustrialization? *BNM Quarterly Bulletin*.
4. Baltagi, B.H. 2005. *Econometric Analysis of Panel Data*. John Wiley & Sons LTD.
5. Dasgupta S, Singh A. 2005. Will Services be the New Engine of Indian Economic Growth? *Journal of Development and Change Institute of Social Studies* 36:1035-1057.
6. Dasgupta, S. 2006. Manufacturing, Services and Premature Deindustrialization in Developing Countries: A Kaldorian Analysis. *United Nation University No 2006/49: 1-18*
7. Dewi,D.A. 2010. Deindustrialisasi di Indoensia 1983-2008: Analisis Dengan Pendekatan Kaldorian (tesis). Bogor: Program Pascasarjana, Institut Pertanian Bogor.
8. Jalilian H, Weiss J. 2000. Deindustrialization in Sub Saharan: Myth or Crysis? *Journal of American Economies Volume 9 Number 1: 24-43*.
9. Kassem, D. 2010. Premature Deindustrialization-The Case of Colombia. *Discussion Paper Series*. Yokohama National University. No 2010-CSEG-06
10. Rodrik, D. Premature Deindustrialization. *J. Econ Growth*. DOI 10.1007/s10887-015-9122-3.
11. Rowthorn, R. 1992. Productivity and American Leadership-A Review. *Review of Income and Wealth Vol.38, No 4:47-96*.
12. Suwarman, W. 2006. Faktor-faktor apakah yang Mendorong Terjadinya Proses Deindustrialisasi di Indonesia. Program Pascasarjana, Universitas Indonesia.

DOI 10.18551/rjoas.2019-08.20

A TECHNICAL STUDY OF MODIFIED GILLNET IN KENDAL REGENCY WATERS

Nurjanah Dhiyah Aprilia Dwi*, Fitri Aristi Dian Purnama, Wijayanto Dian

Coastal Resources Management Program, Department of Fisheries, Faculty of Fisheries and Marine Science, University of Diponegoro, Indonesia

*E-mail: dhiyah_april@yahoo.co.id

ABSTRACT

Gillnets are the fishing gear selected by Kendal fishermen particularly in small-scale artisanal fisheries because gillnets need relatively small capital, have easy operation, use medium- or small-sized fishing vessels, and are selective towards catches. Modifications were made by increasing the performance of the fishermen gillnet to get more economical fish catches. This study aims to technically analyze the modified gillnet on the catch composition. The study was conducted in Kendal waters in April 2019 with a 1 GT vessel using a comparative design with experimental fishing. The modified gillnet was a net made from PA multi-monofilament of 0.20 x 10 ply with 4-inch mesh size with the specifications of the mounted length of netting of 50 meters and the mounted height of netting of 5.9 m for one net with a hanging ratio of 0.55. Based on the paired sample t-test results, t_{count} value = 7.690 is greater than $t_{\text{table}} (0.05) = 1.796$. H_0 is rejected and H_1 which states that there is a difference in the number and weight of fish caught by the fishermen gillnet and the modified gillnet is accepted. Dominant species caught by the modified gillnet were *Euthynnus affinis* which were mostly allowable to catch both caught by the fishermen gillnet (51%) and the modified gillnet (95%) and *Scromberomorus commersoni* which were mostly not allowable to catch both caught by the fishermen gillnet (89%) and the modified gillnet (64%).

KEY WORDS

Gillnet, modification, Kendal, technical specifications, allowable to catch.

Utilization of fish resources in Kendal Regency waters is still dominated by small-scale fishing using various kinds of fishing gears, such as bottom gillnets, danish seine, fish traps, gillnets, mini bottom trawls, mini purse seines, and seine nets (Pratiwi and Rahardjo, 2017). Gillnets are a mainstay fishing gears in Kendal fishing community. Based on previous study conducted by Pratiwi and Rahardjo (2017), catch composition of the fishermen gillnet in Kendal waters showed that around 15% types of demersal fish were caught. It was due to the fishing operation area in shallow waters of 15-30 m with a quite high net height of 11-13 m, causing a high catch of demersal fish. Therefore, to limit the target and increase fish catches, the fishermen's gillnet were modified. Modifications were made by increasing the performance of the fishermen gillnet to get more economical fish catches.

Getting a lot of catches is an expectation of local fishermen. However, if marine resources are captured continuously without regard to allowable-to-catch fish, the catches will be increasingly reduced because gonadal immature fish have no time to breed. Therefore, technical analysis calculations are needed in order to create a gillnet with large catches, yet remains selective to maintain marine sustainability. Effective and selective fishing methods can reduce current overfishing. Catching accuracy is expected to increase fishermen's income.

Thus, a more in-depth study of the modified gillnet in terms of design, construction, and selectivity is needed. This study aims to technically analyze the modified gillnet on the catch composition in Kendal waters.

METHODS OF RESEARCH

This study was conducted in April 2019 in Kendal waters at positions between S 060 ° 47,536' - S 06 ° 52,658' and E 109 ° 00,559' - E 110 ° 57,467' with a depth of between 15 - 30 meters.

The method used in this study was a comparative design with experimental fishing conducted in Kendal Waters, i.e. by comparing the trial of fishing operations using the fishermen gillnet and the modified gillnet.

To find out the technical criteria for the modified gillnet construction, calculations of the hanging ratio, the net height, the buoyant and sinking forces were conducted using the following formula (Prado, 1991):

$$E_{La} = \frac{L_a}{L_{0a}}$$

Where: E_{La} - above hanging ratio; L_a - above mounted length of netting; L_{0a} - above stretched length of netting.

Vertical hanging ratio ($E_{vertical}$):

$$E_{tegak} = \sqrt{1 - E_{La}^2}$$

The position of the net in the water can be calculated using the following formula:

$$h = H \sqrt{1 - E_{tegak}^2}$$

Where: h - Mounted height of netting; H - Stretched height of netting; E - Hanging ratio mean.

Gillnet basic construction has the buoyant and sinking forces so that the net can stretch vertically in the water. The buoyant and sinking forces can be calculated using the following formula:

$$B_1 = W \left(\frac{\partial_{sw}}{\partial_w} - 1 \right)$$

Where: B_1 - Buoyant force of component (kgf); W - Weight of component in air (kgf); ∂_w : Density of component (gr/cm^3); ∂_{sw} - Density of seawater (gr/cm^3).

$$S_1 = W_n \left(1 - \frac{\partial_{sw}}{\partial_w} \right)$$

Where: S_1 - Sinking force of component (kgf); W - Weight of component in air/volume (kgf); ∂_w - Density of component (gr/cm^3); ∂_{sw} - Density of seawater (gr/cm^3).

Data on collected catches was analyzed using descriptive comparative analysis by knowing the type, number, and characteristics as well as their relation to water conditions. Meanwhile, to find out the differences between treatments, an analysis was performed using the Paired sample t-test. According to Sugiyono (2006), the Paired sample t-test is a different test of two samples in pairs. Paired samples are the same subject but experience different treatments, with the following analysis:

H_0 = It is suspected that there is no difference in catches between the fishermen gillnet and the modified gillnet;

H_1 = It is suspected that there is a difference in catches between the fishermen gillnet and the modified gillnet;

If $t_{count} > t_{table}$ then H_0 is rejected and H_1 is accepted;

If $t_{table} > t_{count}$ then H_1 is rejected and H_0 is accepted.

Gillnet selectivity test analysis was conducted by performing the length data collection which was then entered into the pre-determined class interval, then entering the frequency of

each class so that the mean length at first capture/ L_c was obtained. Estimation of L_c or $L_{50\%}$ was done by make a "logistical curve" graph i.e. the relationship between the length of the fish (x) and the number of fish expressed by the cumulative percentage (y) to form a Sigmoid shaped curve. Data were analyzed using the selectivity formula (Sparre, P & S.C. Venema in Anggareini et al., 2017):

$$F(c) = \left(\frac{ndL}{s\sqrt{2\pi}} \right) e^{-\frac{(L''-L)^2}{2S^2}}$$

Where: $F(c)$ = the frequency of fish in a length class; n = number of samples in the sampling; dL = length class interval; s = standard deviation; π = constant 3.14; L'' = mid-length class value; L = the mean length of one fish cohort.

Furthermore, the estimation of the mean and standard deviation of fish length in each sample was done by changing the equation in linear form as follows:

$$\Delta \ln F_c(z) = a - bx \left(L + \frac{dL}{2} \right)$$

Where: $\Delta \ln F_c(z)$ = logarithm difference of two length classes; $L + dL/2$ = the upper limit of each class length; a, b = constants.

The mean and standard deviation values of fish length in each particular age group were estimated using the following formula:

$$L_c = \frac{a}{b} \text{ and } s^2 = -\frac{dL}{b}$$

Then, the comparison between the L_c value and the L_m (length at first maturity) value was conducted.

The following are the technical specifications of the fishermen gillnet and the modified gillnet used in the study:

Table 1 – Gillnet specifications

No	Description	Size (1 piece)	
		Fishermen Gillnet	Modified Gillnet
A. Size / dimension			
1	Stretched length (meter)	100 yard / 91.44	100 yard / 91.44
2	Mounted length (meter)	46	50
3	Net height (mesh)	140	70
B. Net body			
1	Mesh size (inch / mm)	4 / 101.6	4 / 101.6
2	Net material	PA Multi-Monofilament	PA Multi-Monofilament
3	Number of yarns	0.20 x 10 ply	0.20 x 10 ply
C. Rigging			
1	Head rope	PE Ø 7 mm	PE Ø 7 mm
2	Float line	PE Ø 7 mm	PE Ø 7 mm
3	Sinker line	PE Ø 3 mm	PE Ø 3 mm
D. Floats			
1	Material / type	PVC, Y-8	PVC, SH3
2	Number of floats	22	61
3	Distance between floats (cm)	255	83
E. Sinkers			
1	Material	Lead	Lead
2	Number of sinkers	5 pieces @ 500 gr	4 pieces @ 500 gr
3	Distance between sinkers(mesh)	225	112
F. Additional floats			
1.	Material	PVC, bottle type	Styrofoam
2.	Number (pieces)	3	9

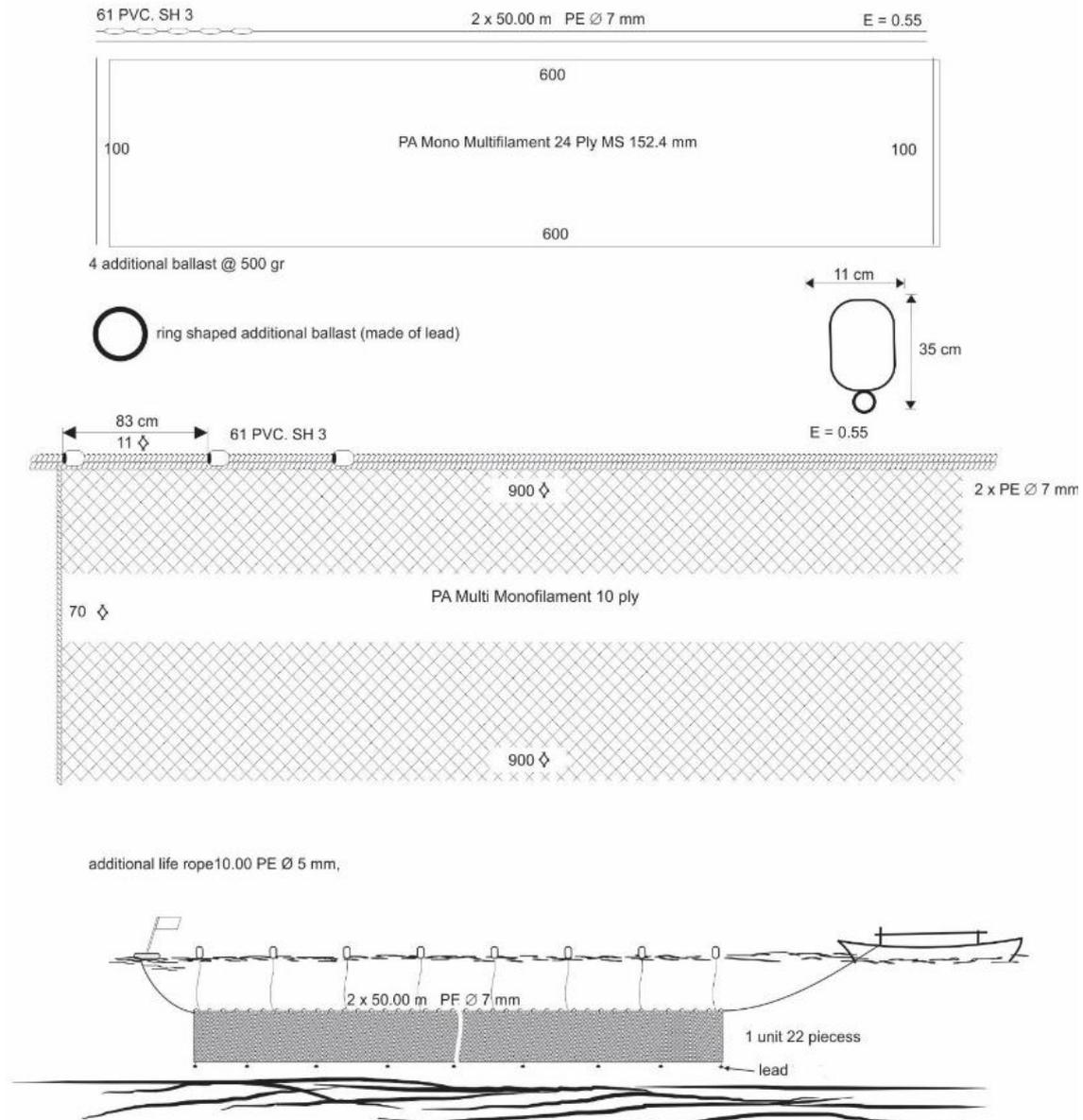


Figure 1 – Design of the Modified Gillnet PA Multi-Monofilament of 0.20 x 10 ply; 4 inch

RESULTS AND DISCUSSION

Kendal Regency waters are one of the most potential demersal and pelagic fish distribution areas in the northern waters of Central Java. Diverse fish resource potentials include small pelagic fish, large pelagic fish, demersal fish, reef fish, hard skin animals (crustaceans), soft skin animals (mollusks), and other aquatic animals. Based on Kendal Regency Fishery Statistics Data in 2018, the total production of Kendal Regency fisheries was 2,762 tons with a production value of IDR 27,749,713,000. Small pelagic fish dominated the production of 1,850.54 tons, followed by large pelagic fish production of 138.1 tons, demersal fish of 745.74 tons, and other fish of 27.62 tons. Large pelagic fish utilization was not optimal when compared to small pelagic fish utilization.

A gillnet is a mounted perpendicular net in the water to block the fish swimming direction. Targets species of gillnet are pelagic fish and/or demersal fish, depending on the gillnet position stretched in the water column. Based on observations, fish are caught by being enmeshed in the netting or entangled in the net body. If the fishing gear catches a lot of fish by entangling, the mesh as trappers cannot function properly. Fishes larger or smaller than the mesh can be caught in the net without having to penetrate the mesh (Razak et al,

2014). The modified gillnet is a gillnet operated in the middle of the water column to catch pelagic fish.

Gillnets components according to SNI 01-7215-2006 are as follows:

1. A float line is a rope used to place and tie floats;
2. A float is an object which has the buoyant force, is attached on the upper net, and functions as a float for the net;
3. An upper selvedge line is a rope located between the float line and the head rope functioning as a reinforcement of the upper net rope;
4. A head rope is a rope used to hang the net body;
5. An upper selvedge is a sheet of netting attached above the net body functioning as a reinforcement of the upper net body;
6. A net body is a rectangular sheet of netting with equal or even mesh size;
7. A lower selvedge is a sheet of netting attached under the net body functioning as a reinforcement of the bottom net body;
8. A side line is a rope attached to the sides of the net body functioning as a gillnet height limits;
9. A ground rope is a rope used to limit the movement of the net to the side;
10. A lower selvedge line is a rope located between the ground rope and the sinker line functioning as a reinforcement of the bottom net rope;
11. A sinker line is a rope used to place and tie sinkers;
12. A sinker is an object which has the sinking force, is attached on the bottom net, and functions as a sinker for the net.

Gillnet technical analysis was directed to calculations related to the hanging ratio or elongation, the mounted height of netting, and the comparison of the buoyant and sinking forces. These calculations were very necessary to examine the technical feasibility of the design and to provide recommendations for the gillnet to work optimally. The following are the gillnet technical calculations adjusted to the SNI 01-7215-2006 technical provisions on the standard form of multifilament surface gillnet construction without recommendation:

Table 2 – Technical calculations of the fishermen gillnet and the modified gillnet

No.	Component	Calculation Value		
		Fishermen	Modified	SNI 01-7215-2006
1	Hanging ratio (Elongation)	0.5	0.55	0.50 – 0.65
2	Mounted height (h)	12.23 meter	5.9 meter	-
3	Yarn diameter (dt)	0.2 mm	0.2 mm	0.1 – 1.8 mm
4	Buoyant & sinking forces			
	- Head rope	0.080 (-)	0.092 (-)	
	- Float line	0.080 (-)	0.092 (-)	
	- Sinker line	0.010 (-)	0.017 (-)	
	- Net	1.160 (+)	0.580 (+)	
	- Floats	1.760 (-)	1.708 (-)	
	- Sinkers	2.270 (+)	1.800 (+)	
5	Comparison of buoyant & sinking forces (W per B)	1.178	1.25	1.20 – 1.45

Based on the above table, it can be seen that the modified multi-monofilament gillnet of 10 ply; 4 inch was in accordance with or was still in the range of SNI 01-7215-2006. The elongation value of modified gillnet was 0.55. The increased hanging ratio was intended to open the mesh wider. A higher hanging ratio results in wider openings in the mesh with lower slack levels. Conversely, a smaller hanging ratio will result in lower net openings with higher slack levels. Higher net slack will increase the entanglement of the net against the catches (Prado, 1991).

According to Al Hizaz's research (2011), the higher entanglement in the bottom gillnet with a hanging ratio of 0.45 had an impact on the total number of fish caught in the bottom gillnet. The compositions of *Decapterus spp* catches by the bottom gillnet were 73% of fish was entangled, 16% of fish was wedged, and 11% of fish was gilled. The smaller the hanging ratio was, the more fish would be caught and the fish were entangled. It means that the gillnet was not selective. The hanging ratio was ineffective in gillnet selectivity. Therefore, by

increasing the hanging ratio of 0.55, the modified gill net was expected to catch large fish only.

The modified gillnet height was 5.9 m. Net body cutting from 140 mesh into 70 mesh was conducted. It aimed to adjust to the depth of the fishing ground area ranged only between 15-30 m and was in accordance with the swimming layer of the catch target i.e. *Euthynnus affinis* and *Scromberomorus commersoni* fish. Based on previous study conducted by Pratiwi and Rahardjo (2017), catch composition of the fishermen gillnet in Kendal waters showed that around 15% types of demersal fish were caught. It was expected that net body cutting allowed a high pelagic fish catches.

The comparison of the buoyant and sinking forces of the modified gillnet was 1: 1.25. The comparison of the buoyant and sinking forces shows the net position on the water surface. Net position is determined by stretch tension of the net body. According to Ayodhya (1981) in Al Hizaz (2011), stretch referred to here is stretch in the width as well as stretch in the length. This stretch tension will result in tension on the float line and the net body. If the net is stretched too tight, then the fish will be difficult to get entangled and the entangled fish will easily escape. The stretch tension of the net body will be determined primarily by the buoyant force of floats, the net body weight, the rigging, the sinking force of sinkers, and the shortening used.

The net mesh size of 4 inches (101.6 mm) was aimed for pelagic fish catch targets such as *Euthynnus affinis* and *Scromberomorus commersoni*. This is in line with the research results of Pratiwi, M (2010), Hantardi et al (2013), and Marliani (2016) stating that a gillnet with 4 inch/101.6 mm mesh size was used for pelagic fishing i.e. *Euthynnus affinis* and *Scromberomorus commersoni*.

Based on the technical analysis, the modified gillnet performance, in general, can be operated properly. The setting process took around 30 minutes. Floats on the gillnet can work well because they were able to withstand the sinking force of the net. It means that the buoyant force worked well as was shown when the hauling was performed. The top of the net was not twisted and the position of the net body sheet stretched across the water column. Sinkers on the gillnet also worked well because they were able to offset the buoyant force, causing the net sheet to stretch across the water column. The hanging ratio of 0.55 made fish caught by being enmeshed or entangled. The captured fish were in accordance with the target, i.e. catching large-sized pelagic fish according to 4-inch mesh size.

Table 3 – Composition of gillnet catches

No.	Fish Species	Fishermen Gillnet		Modified Gillnet	
		Number (fish)	Weight (kg)	Number (fish)	Weight (kg)
1	<i>Formio niger</i>	2	0.74	1	0.56
2	<i>Saurida tumbil</i>			1	0.15
3	<i>Rhizoprionodon acutus</i>	1	0.87		
4	<i>Pomadasys maculatus</i>	21	11.28	2	1.32
5	<i>Johnius trachycephalus</i>	2	0.25		
6	<i>Rastrelliger brachysoma</i>	14	0.75	28	1.3
7	<i>Eleutheronema tetradactylum</i>			2	2.03
8	<i>Istiophorus platypterus</i>			1	3.75
9	<i>Trichiurus lepturus</i>	1	0.14		
10	<i>Arius thalassinus</i>	8	5.22		
11	<i>Lutjanus Mahogoni</i>	7	5.31	4	2.84
12	<i>Chirocentrus dorab</i>			2	0.33
13	<i>Dasyatis sp</i>	1	0.52		
14	<i>Leiognathus equulus</i>	5	0.76		
15	<i>Psettodes erumeri</i>	3	0.75		
16	<i>Selaroides leptolepis</i>	3	0.21	11	1.03
17	<i>Scomberoides commersonianus</i>			2	1.85
18	<i>Scromberomorus commersoni</i>	45	47.6	94	194.41
19	<i>Euthynnus affinis</i>	39	29.82	58	87.85
	Total	152	104.22	206	297.42

The gillnet catch target was pelagic fish. There were 19 species of fish caught. Based on paired sample t-test results, the t_{count} value = 7.690 while the t_{table} (0.05) value = 1.796. From the significance test results, it was found that the t_{count} value is greater than the t_{table} value. Thus, it can be concluded that H_0 is rejected and H_1 stating that there is a difference in catches between the fishermen gillnet and the modified gillnet is accepted. The modified gillnet was able to catch more pelagic fish based on the number and weight of fish.

Composition of gillnet catches from the fishermen gillnet and the modified gillnet varied. However, selectivity testing required fish species often caught in both nets. Fish species often caught were *Euthynnus affinis* and *Scromberomorus commersoni*. The fish were used for selectivity analysis test material which showed the selectivity level between the two different hanging ratios. It is confirmed by Argent and Kimmel (2005) in Putri et al (2018) that all types of nets generally catch all fish species, but significantly different types of fishing nets catch more diverse fish species. Thus, the tested species are fish species often caught by all nets.

Selectivity testing was employed to see how much the number and size of fish caught categorized as allowable to catch. According to Sparre & Venema in Anggareini et al., (2017), the less the number of catches is entangled, the more likely the fishing gear is selective. The number or proportion of fish caught with gillnet by being entangled highly determines gillnet selectivity. Thus, it is important to know the proportion of catch and the way fish are caught.

Table 4 – Measurement results of the length, weight, and girth of *Scromberomorus commersoni* fish

Measurement parameters		Fishermen gillnet	Modified gillnet
Fork length (cm)	Size range	35.40 – 79.00	39.00 – 93.50
	Mode	48.00	64.00
	Mean	48.99	65.55
Weight (gram)	Size range	510 – 2.780	1.020 – 4.300
	Mode	750	1.071
	Mean	2.000	2.068
Girth (cm)	Size range	16.00 – 28.50	21.00 – 39.00
	Mode	21.00	26.40
	Mean	21.64	26.39

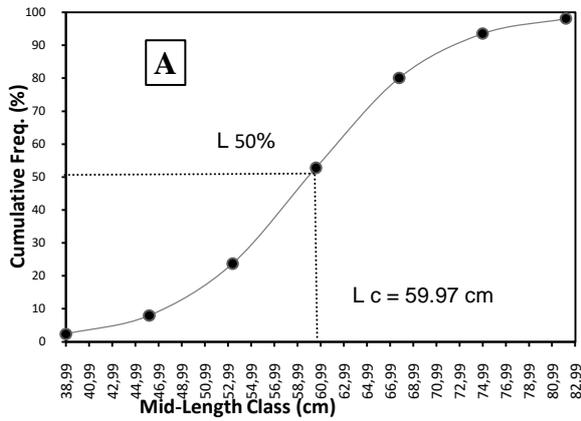
Table 5 – Measurement results of the length, weight, and girth of *Euthynnus affinis* fish

Measurement parameters		Fishermen gillnet	Modified gillnet
Fork length (cm)	Size range	26.10 – 50.00	26.00 – 55.50
	Mode	31.20	45.00
	Mean	35.28	44.18
Weight (gram)	Size range	220 – 2.300	290 – 2.500
	Mode	410	1.300
	Mean	765	1.515
Girth (cm)	Size range	17.00 – 32.00	18.40 – 35.00
	Mode	22.50	32.00
	Mean	23.15	28.39

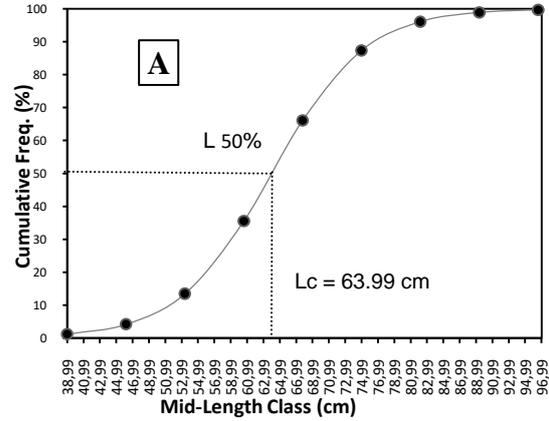
To determine the gillnet selectivity, an analysis of the proportion of allowable-to-catch fish was conducted, i.e. the estimation of the size of fish caught categorized as allowable to catch. The proportion of allowable-to-catch fish was known by measuring L_c using the fork length-frequency distribution and then being compared to the length at first maturity. This study did not calculate the L_m value of fish caught. The L_m values of mackerel and tuna were based on the L_m value of the references.

The results showed the L_c values of *Scomberoides commersonianus* caught by the fishermen gillnet ($L_c = 59.97$ cm) and the modified gillnet ($L_c = 63.99$ cm) were smaller than the L_m value (65-70.9 cm). These results provided information that *Scomberoides commersonianus* fishing using the gillnets was not good ($L_c < L_m$), because the mean of fish caught was in immature conditions. The gillnets were not selective against *Scomberoides commersonianus* fish because they caught immature *Scomberoides*

commersonnianus fish. Whereas, the Lc values of *Euthynnus affinis* caught by the fishermen gillnet (Lc = 33.9 cm) and the modified gillnet (Lc = 41.66 cm) were greater than the Lm value (33.7 cm). It provided information that *Euthynnus affinis* fisheries were in good condition because of the value of Lc > Lm.

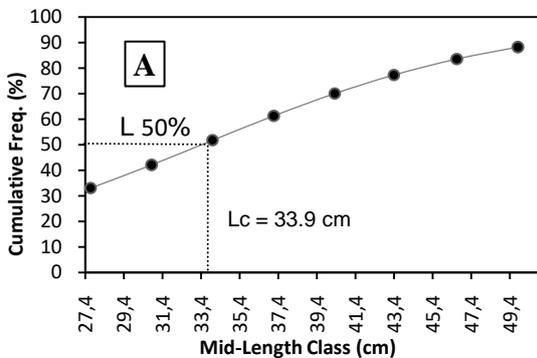


Fishermen gillnet

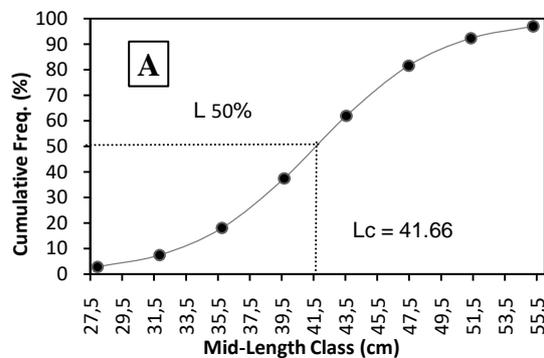


Modified gillnet

Figures 2 & 3. Graph of Lc of *Scomberoides commersonnianus* caught by the gillnets



Fishermen gillnet



Modified gillnet

Figures 4-5 – Graph of Lc of *Euthynnus affinis* caught by the gillnets

Saranga et al (2019) stated that if the value of Lc < Lm, then the condition of fish resources is not good because it can lead to the growth of unhealthy fish stocks as a result of fishing pressure. If this condition is left continuously, it will endanger fish stock conditions because there is no recruitment process. This condition can be minimized by catching mature fish only. However, it is certainly a challenge for stakeholders in implementing the rules.

Table 6 – The size of fish caught compared to the Lm value of the references

Fish species	Lc value (cm)		Lm value (cm) based on the references	
	Fishermen Gillnet	Modified Gillnet		
<i>Scomberoides commersonnianus</i>	59.97	63.99	65	Ramadhan (2008)
			70.9	Boesono et al (2017)
			85.0	www.fishbase.org
<i>Euthynnus affinis</i>	33.9	41.66	33.7	Hidayat et al (2018)
			39.8	www.fishbase.org

Table 7 – Proportion of gillnet catch size

Criteria	Fishermen gillnet				Modified gillnet			
	<i>Scomberoides commersonnianus</i>		<i>Euthynnus affinis</i>		<i>Scomberoides commersonnianus</i>		<i>Euthynnus affinis</i>	
	Number (fish)	(%)	Number (fish)	(%)	Number (fish)	(%)	Number (fish)	(%)
< Lm	40	89	19	49	60	64	3	5
> Lm	5	11	20	51	34	36	55	95
Total	45	100	39	100	94	100	58	100

Based on the proportion of gillnet catch size for 2 (two) dominant species caught, *Euthynnus affinis* were mostly allowable to catch, both caught by the fishermen gillnet (51%) and the modified gillnet (95%). *Scomberoides commersonnianus* were mostly not allowable to catch, both caught by the fishermen gillnet (89%) and the modified gillnet (64%). It is in line with Boesono et al's (2017) research that most fish caught by the millennium gillnet in Pati waters were not allowable to catch. Because of the number of allowable-to-catch fish <60%, it can be said that the millennium gillnet was less environmentally friendly. Fish catching above the size at first maturity can provide opportunities for the target fish to reproduce and spawn before being caught.

The proportion of allowable-to-catch fish and the composition of the main target catch showed the gillnet selectivity. When the proportion of allowable-to-catch fish and the produced main catches is greater, then the fishing gear can be said to be selective in terms of species. According to Ekipano (2012) in Boesono et al (2017), fishing gear selectivity is the ability of fishing gear to catch target fish at a certain size and species during fishing operation. Regulation on fishing gear selectivity aims to optimize the sustainable use of fish resources including increasing catch value and protecting certain species. The target fish is determined by considering the minimum size or weight of the allowable-to-catch fish.

CONCLUSION AND SUGGESTIONS

The modified gillnet made from PA Multi Monofilament of 0.20 x 10 ply with 4-inch mesh size had technical specifications of a hanging ratio of 0.55, mounted height of netting on the water column of 5.9 meters, the total buoyant force of 1.909 kgf, and the total sinking force of 2,380 kgf. Thus, the comparison of the buoyant and sinking forces was 1: 1.25 in accordance with the SNI 01-7215-2006 technical provisions on the standard form of multifilament surface gillnet construction without recommendation.

Based on the paired sample t-test results, t_{count} value = 7.690 is greater than t_{table} (0.05) = 1.796. H_0 is rejected and H_1 which states that there is a difference in the number and weight of fish caught by the fishermen gillnet and the modified gillnet is accepted.

The gillnets were not selective against *Scomberoides commersonnianus* fish because they caught immature *Scomberoides commersonnianus* fish.

Dominant species caught by the modified gillnet were *Euthynnus affinis* which were mostly allowable to catch, both caught by the fishermen gillnet (51%) and the modified gillnet (95%) and *Scomberoides commersonnianus* which were mostly not allowable to catch, both caught by the fishermen gillnet (89%) and the modified gillnet (64%).

Suggestion that can be given is in designing new fishing gear oriented to increasing the number and weight of fish catches, the security and management of fish resources should be considered. For example, for *Scomberoides commersonnianus* and *Euthynnus affinis* fishing in Kendal waters, increasing the size of fish caught is performed by reducing the number of fishing trips or the number of fishing operations to 1/2 or 1/3 of the total fishing trips during the spawning season.

REFERENCES

1. Al Hizaz, 2011. Perbedaan Hanging Ratio Jaring Rampus terhadap Hasil Tangkapan Ikan Layang di Perairan Cisolok, Palabuhan Ratu. Bogor: Institut Pertanian Bogor.

2. Anggreini, Alinda Putri., Septiana Sri Astuti, Irfan Miftahudin, Putri Inova Novita, Dewa Gede Raka Wiadnya. 2017. Uji Selektivitas Alat Tangkap Gillnet Millenium terhadap Hasil Tangkapan Ikan Kembung (*Rastrelinger brachysoma*). *Journal of Fisheries and Marine Science* Vol. 1 No.1.
3. Boesono, H., Wangsit Nugroho, Indradi Setiyanto. 2017. Analisis Keramahan Alat Tangkap Jaring Tenggiri (Gillnet Millenium) di Perairan Pati terhadap Hasil Tangkapan. *Journal of Fisheries Resources Utilization Management and Technology*. 6(2): 89-97
4. Dinas Kelautan and Perikanan Kabupaten Kendal. 2019. Statistik Perikanan Kabupaten Kendal tahun 2018. Kendal: Badan Pusat Statistik.
5. Haluan, C. C. Rakhmadevi, Ari Purbayanto, & M. Fedi A. Sondita. 2011. Studi Mengenai Proses Tertangkapnya and Tingkah Laku Ikan Terhadap Gillnet Millenium Di Perairan Bondet, Cirebon. *Marine Fisheries* Vol. 3, No. 1, 7-13
6. Hantardi, Zulie; Asriyanto; Aristi Dian. 2013. Analisis Lingkar Tubuh and Cara Tertangkap Ikan Tenggiri (*Scomberomorus commerson*) dengan Alat Tangkap Jaring (Gill Net) dengan Mesh Size 4 Inchi and Hanging ratio 0.56. *Journal of Fisheries Resources Utilization Management and Technology*, 2(3), 253-262.
7. Hidayat, T., Noegroho, T., Chodrijah, U., 2018. Biologi Ikan Tongkol Komo (*Euthynnus affinis*) di Laut Jawa. *Jurnal Pengelolaan Perikanan Tropis*, 2(1): 30-36
8. Marliani, Lina. 2016. Tingkat Pemanfaatan Ikan Tenggiri (*Scomberomorus commersoni*) di Perairan Kabupaten Indramayu. Unpublished Thesis. Departemen Pemanfaatan Sumberdaya Perikanan. Fakultas Perikanan and Ilmu Kelautan. Institut Pertanian Bogor. Bogor.
9. Prado, J & P.Y Dremiere. 1991. Petunjuk Praktis Bagi Nelayan. Translated by Fauzi, Zaroehman, Nur Bambang, Dulgofar, and Baithur Sjarif. FAO. BPPI. Semarang
10. Pratiwi, B. C., Rahardjo, Oktavian. 2018. Uji Kinerja Jaring Insang Millenium di Kabupaten Kendal, Jawa Tengah. *Jurnal Ariomma*, 34(1), 1-13.
11. Pratiwi, Mira. 2010. Komposisi Hasil Tangkapan Ikan Pelagis pada Jaring Insang Hanyut dengan Ukuran Mata Jaring 3,5 and 4 inci di Perairan Belitung Provinsi Bangka Belitung. Unpublished Thesis. Departemen Pemanfaatan Sumberdaya Perikanan. Fakultas Perikanan and Ilmu Kelautan. Institut Pertanian Bogor. Bogor.
12. Razak, Abu Darda., Sepri, Mustasim, Muhfizar. 2014. Analisis Pengaruh Perbedaan Hanging Ratio pada Jaring Insang (Gillnet) terhadap Hasil Tangkapan Ikan. *Jurnal Airaha*, III(1), 01-09.
13. Saranga, R., Silvester S., Jerry K., Muh. Zainul A., 2019. Ukuran Pertama Kali Tertangkap, Ukuran Pertama Kali Matang Gonad and Status Pengusahaan Selar Boops di Perairan Bitung. *Journal of Fisheries and Marine Research*, 2(1), 67 – 74
14. Rahman, D.R., Tiarso, I., Asriyanto. 2013. Analisis Bioekonomi Ikan Pelagis pada Usaha Perikanan Tangkap di Pelabuhan Perikanan Pantai Tawang Kabupaten Kendal. *Journal of Fisheries Resources Utilization Management and Technology*, 2(1), 1-10.
15. SNI 01-7215-2006. Bentuk Baku Konstruksi Jaring Insang Pertengahan Multifilament Tanpa Saran. Badan Standarisasi Nasional.

DOI 10.18551/rjoas.2019-08.21

**SATISFACTION OF THE FARMING COMMUNITY TOWARDS THE PERFORMANCE
OF AGRICULTURAL EXTENSION SERVICE: A CASE STUDY IN BENJENG
SUBDISTRICT OF GRESIK REGENCY, INDONESIA**

**Hidayat Syarif Imam, Indah Pawana Nur*, Nurhayati Tias, Harya Gyska Indah,
Hendrarini Hamidah**

Faculty of Agriculture, UPN "Veteran" Jawa Timur, Surabaya, Indonesia

*E-mail: pawanaturindahupnjatim@gmail.com

ABSTRACT

Nowadays, there are still many common weaknesses in the public service that is run by the government officials, so it has not met the quality expected by the public. It is indicated by the presence of public complaints submitted from the mass media, which can give an unfavorable image to the government. Therefore, people's satisfaction with public services need to be measured through the Decree of the Minister of Administrative Reform (KEMENPAN) No. KEP/25M.PAN/2/2004 (Date: February 24, 2004) on General Guidelines for the Arrangement of Community Satisfaction Index of Government Agencies Service Unit. This study is conducted in Benjeng Subdistrict, as one of the sub district in Gresik Regency with a vast area of farm land and high production of rice. The sample of this study is taken by purposive method from the administrator of farmer groups from each group in Benjeng Subdistrict. The measurement of the Community Satisfaction Index is done by calculating an index of 14 indicators of adoption result from KEMENPAN 2004. The result of this study shows that the community in Benjeng Subdistrict is satisfied with the agricultural extension services provided by BP3K of Benjeng Subdistrict with a point of 79.00 and grade B for the service quality. There are 12 factors that support the satisfaction and 2 factors that inhibit the satisfaction. Increasing the effectiveness of teamwork implementation with other parties and reproduces plot need to be done in order to maintain and increase the community satisfaction.

KEY WORDS

Public service, community satisfaction index, community.

The implementation of public services is still faced with conditions that are not in accordance with the needs and changes in various fields of life in the community, nation, and state. The government in the public service reformation era has attempted to improve the public service quality by issuing public satisfaction measurement instrument, or in standard term, the general guidelines for compiling the community satisfaction index of government agency service units. It is written in the Decree of the Minister of Administrative Reform No. KEP/25M.PAN/2/2004 (Date: February 24, 2004) concerning the General Guidelines for the Arrangement of Community Satisfaction Index of Government Agency Service Units. This regulation instructs the regional government or agency to assess how much satisfaction the community has with the services that are provided.

Extension, as a part of an effort to educate the nation and promote public welfare, is included as human right for Indonesian citizens. The government is obliged to provide extension services in the field of agriculture, fisheries, and forestry. The purpose of agricultural extension is to change the main behavior of business actors through increasing their knowledge, skills, attitudes, and motivations (Ministry of Agriculture, 2009). Government extension institutions are mentioned in the Law Number 16 of 2006 concerning the Agricultural, Fisheries, and Forestry Extension System. At the provincial level, the agency is in the form of Extension Coordination Board; at the regency or city level, the agency is in the form of Extension Handling Agency, and at the Subdistrict level it is in the form of Extension Center.

The Extension Center of Agriculture, Fisheries, and Forestry (BP3K) is an extension implementer and the Regional Government Operational Technical Implementation Unit in the Field of Agricultural, Fisheries, and Forestry Extension that supports agricultural, fisheries, and forestry development programs both at central and regional levels. The effectiveness of the implementation of agricultural extension in Benjeng's BP3K Working Area can be measured through the level of satisfaction of the farming community in obtaining services from the field instructor.

The satisfaction of the farmers community towards the agricultural extension services held by the BP3K in Benjeng Subdistrict is very dependent on the performance provided by the field agriculture instructors. Therefore, it is necessary to study how the performance of the field instructors in providing services to the farming community.

Based on the research problems above, this study aims to calculate the index of satisfaction of the farmer community towards agricultural extension services by BP3K in Benjeng Subdistrict, identify factors that support and inhibit the satisfaction, and provide alternative measures that can be applied.

LITERATURE REVIEW

Kotler (2005) argues that satisfaction is a feeling of pleasure or disappointment of someone who appears after comparing between his perceptions or impressions of the performance or results of a product and expectations of satisfaction. Satisfaction is a function of perception or impression of performance and expectations. If the performance is below expectations, the customer would not be satisfied. If the performance meets the expectations, customers would be satisfied. If the performance exceeds the expectations, customers would be very satisfied or happy.

Community satisfaction toward the government service performance needs to be continuously measured and compared. One way that can be done to measure community satisfaction with government services is by using the Community Satisfaction Index. The Decree of the Minister of Administrative Reform (KEPMENPAN) Number 25 of 2004 about the General Guidelines for the Arrangement of Community Satisfaction Index mentions the Community Satisfaction Index definition, which is: data and information about the level of community satisfaction obtained from quantitative and qualitative measurement of community opinion in obtaining services from community service providers by comparing their expectations and needs.

Based on the service principles as stipulated in the Decree of Minister of Administrative Reform Number 63/KEP/M.PAN/7/2003, there are 14 indicators that become the minimum element that must exist for the basis of measurement of the Community Satisfaction Index, as written down below:

- Service procedure;
- Service requirements;
- Clarity of service personnel;
- Discipline of service personnel;
- Responsibility of service personnel;
- Speed of service;
- Fair service;
- Courtesy and friendliness of servers or officers;
- Fairness of service fees;
- Certainty of service fees;
- Certainty of service schedule;
- Environmental comfort;
- Service security.

Agricultural extension is a policy tool that can be used by the government to encourage agricultural development. The main task of agricultural extension agents is to carry out agricultural extension activities to develop farmers' ability to master, utilize, and apply new

technologies, so that they are able to work better, earn bigger profit, and foster a more prosperous family by farming. The main tasks of the extension agents are:

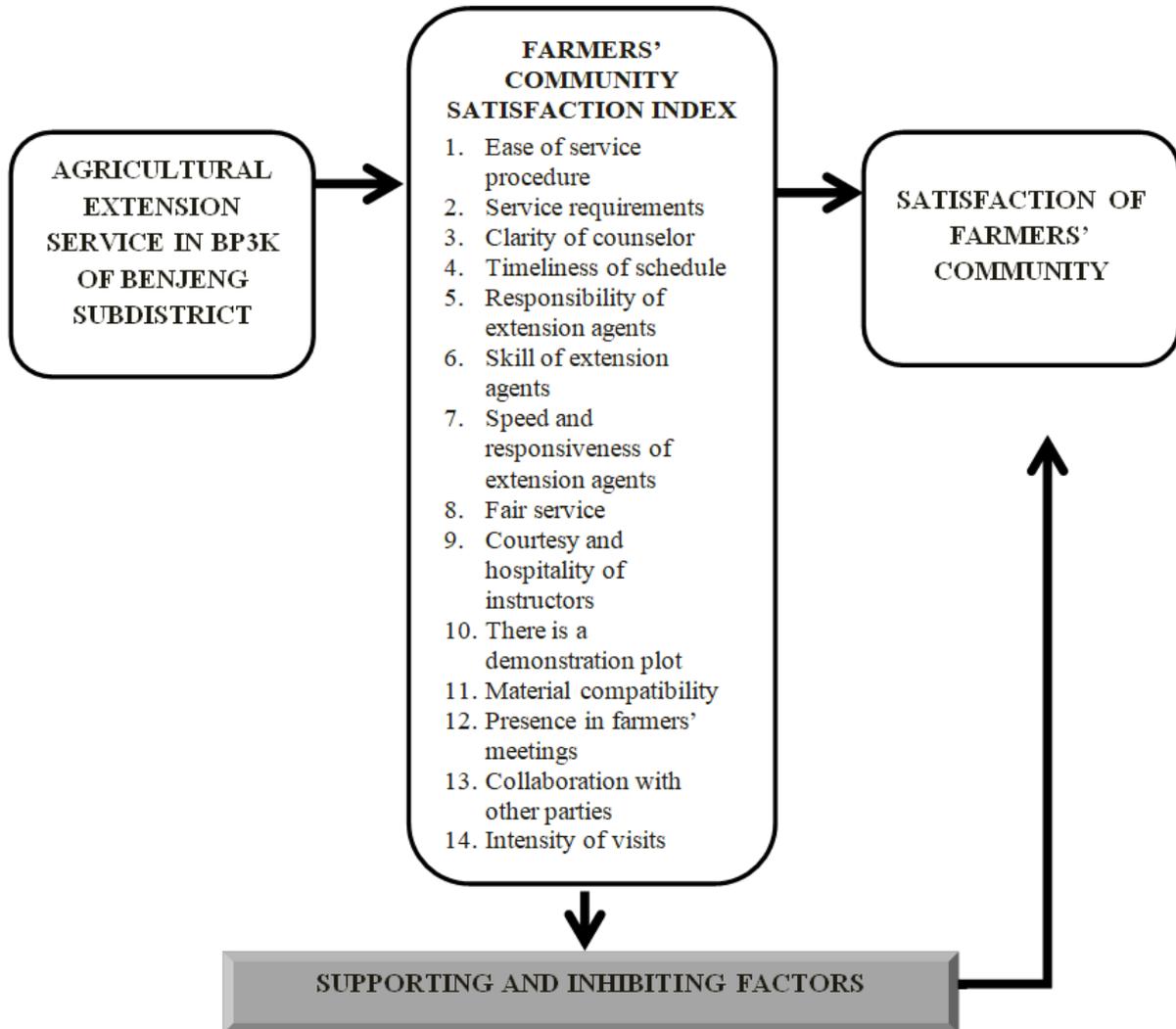


Figure 1 – Conceptual Framework

The hypotheses proposed in this study are as follows:

- It is suspected that the farming community in Benjeng Subdistrict is satisfied with the agricultural extension services done by the BP3K of Benjeng Subdistrict;
- It is assumed that the indicators of ease of procedure, extension requirements, clarity of agents, accuracy of schedules, responsibilities of agents, agents' ability, agents' responsiveness, service justice, courtesy of agents, material suitability, and the presence of extension agents in meetings become a factor that supports the satisfaction of farmer community with agricultural extension services done by BP3K of Benjeng Subdistrict.

METHODS OF RESEARCH

This study is conducted using qualitative method. The data collection is done by in-depth interviews in order to obtain systematic data and information collection about a very specific particular problem. The location of this study is in Benjeng Subdistrict, Gresik Regency that is done purposively, considering that Benjeng Subdistrict, Gresik Regency is an area with the majority of the people work in agriculture and most of the land are used for

agricultural purposes. The samples are also chosen purposively, by taking the management of farmer groups in the Subdistrict with the amount of 80 samples.

The value of Community Satisfaction Index (CSI) is calculated using “weighted average value” of each service element. To obtain the service units of the community satisfaction index (CSI), the weighted average value approach is used. In order to ease the interpretation of the CSI assessment, which is between 25 to 100, the results of the assessment above are converted with a base value of 25.

Since the service units have different characteristics, it is possible for each service unit to: add elements that are considered relevant; give different weights to 14 (fourteen) dominant elements in the service unit, as long as the number of weights of all elements is 1.

Table 1 – Table of Perception Value, CSI Interval, CSI Conversion Interval, Quality Service, Service Unit Performance, Satisfaction toward Service

Perception Value	CSI Interval Value	CSI Interval Conversion Value	Service Quality	Service Unit Performance	Satisfaction Toward Service
1	1,00 - 1,75	25 – 43,75	D	Not good	Not satisfied
2	1,76 - 2,50	43,76 – 62,50	C	Not good	Less satisfied
3	2,51 - 3,25	62,51 – 81,25	B	Good	Satisfied
4	3,26 - 4,00	81,26-100	A	Very good	Very satisfied

Source: KEMENPAN No. KEP/25/M.PAM/2/2004.

RESULTS AND DISCUSSION

Based on the measurement toward 14 service indicators, the calculation result of Community Satisfaction Index (CSI) of agricultural extension service in Benjeng Subdistrict is obtained. It refers to the data processing of the Community Satisfaction Index per service indicator (data on the Appendix), which is presented in Table 2 as follows:

Table 2 – Public Satisfaction Index Calculation per Service Indicator

No.	Service Indicator	Total Value	CSI Value	CSI Conversion Value	Quality of Services	Performance
1	Ease of service procedure procedures	284	3,55	88,75	A	Very good
2	Service requirements	286	3,57	89,25	A	Very good
3	Clarity of information delivery	279	3,48	87	A	Very good
4	Timeliness of extension schedule	291	3,63	90,75	A	Very good
5	Responsibility of extension agents	261	3,26	81,5	A	Very good
6	Skill of extension agents	262	3,27	81,75	A	Very good
7	Speed and responsiveness of extension agents	268	3,35	83,75	A	Very good
8	Fair services	264	3,3	82,5	A	Very good
9	Courtesy and hospitality of instructors	279	3,48	87	A	Very good
10	There is a demonstration plot	192	2,4	60	C	Not good
11	Material compatibility	274	3,42	85,5	A	Very good
12	Presence in farmers' meetings	265	3,31	82,75	A	Very good
13	Cooperation with other parties	177	2,06	51,5	C	Not good
14	Intensity of visit	254	3,17	79,25	B	Good
	Total Amount	3.636	45.4	3.16	.	

Source: Processed Primary Data, 2016.

To ease the interpretation for the CSI assessment, which is between 25 to 100, the total results of CSI Conversion value is converted with the base value of 25.

The CSI Conversion value = $3.16 \times 25 = 79.00$. Furthermore, the result of the conversion value of the Community Satisfaction Index (CSI) toward extension services in the

Agricultural, Fisheries, and Forestry Extension Services of Benjeng Subdistrict is adjusted with a categorization of service quality based on the index shown in Table 3 as follows:

Table 3 – Categorization of Service Quality

CSI Interval Values	CSI Conversion Interval Value	Quality Service	Service Unit Performance
1,00 – 1,75	25,00 – 43,75	D	NOT SATISFIED
1,76 – 2,50	43,76 – 62,50	C	LESS SATISFIED
2,51 – 3,25	62,51 – 81,25	B	SATISFIED
3,26 – 4,00	81,26 – 100,00	A	VERY SATISFIED

Source: KEPMENPAN No. KEP/25/M.PAM/2/2004.

Table 4 – Alternative Efforts

No	Indicator	Alternative Efforts that can be done to Maintain and Increase the Satisfaction of the Farming Community	Importance Assessment According to the Respondent
1.	Ease of extension procedures	Extension agents are easily found by farmers Extension agents are easily contacted via telephone, SMS, or other social media Maintain the ease of service that has been implemented	Standard
2.	No extension requirements	Maintain the rules that have been implemented by providing counseling without additional condition	Standard
3.	Delivery of clear information by extension agents	Use simple language that is easy of understand Convey information with sources and clear references Use props that are easy to practice	Very important
4.	Timeliness of extension schedules	Create a short, medium, and long term work planning schedule Always coordinate with farmer group administrators before conducting counseling Hold regular meetings	Important
5.	Responsibility of extension agents	Evaluate and monitor when problems occur in agriculture Identify and formulate solutions to problems that cannot be resolved by farmers Maintain what has been considered good by the farming community	Very important
6.	Competency of extension agents	Always attend training, comparative studies, and seminars to improve insight and skills	Important
7.	Responsiveness of extension agents	Equip themselves with extensive insight into new information and technologies related to agriculture, to increase intensification of production Establish cooperation with other institutions or NGOs that can provide training in the form of excellent service Utilizing information and communication technology Maintaining speed and response that has been rated well by the farming community	Very important
8.	Fairness of service of extension agents	Providing extension services to all farming communities without distinguishing farmers who become administrator of the Gapoktan or not	Standard
9.	Courtesy and friendliness of extension agents	Follow local values, culture, and customs Use local language in communicating Respect and assist farmers in all problems	Standard
10.	Material compatibility with the needs of the farming community	Choosing material in accordance with the problems or circumstances faced by farmers Material variations and renewal Provide materials that contain new science and technology for the farming community	Important
11.	The presence of extension agents at every farmers' meeting	Participate in all agricultural community activities related to agriculture In the farmers' meeting, the instructor gives suggestion	Very important

Based on the categorization of service quality in Table 3 above, the Agricultural, Fisheries, and Forestry Extension Center of Benjeng Subdistrict obtained the CSI Conversion Interval Value of 79.00. The service unit performance of Agricultural, Fisheries, and Forestry Extension Center of Benjeng Subdistrict is in the 'B' grade with 'GOOD' category, and the farming community in Benjeng Subdistrict is satisfied with the service that

is provided. The supporting and inhibiting factors that affect the satisfaction of the farming community toward agricultural extension services in BP2K of Benjeng Subdistrict are:

Supporting factors: Ease of extension procedures; No extension requirements; Delivery of clear information by extension agents; Timeliness of extension schedules; Very responsible extension agents; Competent extension agents; Responsive extension agents; Fair services in getting extension services; Compatibility of the material with the needs of the farming community; Agents' presence at every farmers' meeting/event.

Inhibiting factors: Lack of demonstration plots and extension equipment; Lack of effective cooperation with other parties, such as follow-up of cooperation that has not been fully implemented; Lack of intensity of extension visits.

The alternative efforts that can be applied from the problems and conditions in order to maintain and increase the satisfaction of the farming community towards the performance of agricultural extension in the BP3K of Benjeng Subdistrict from the 14 indicators that have been discussed is explained in Table 4.

CONCLUSION

From the results and discussion of the study about the analysis of Farming Community Satisfaction Index on the performance of agricultural extension services in BP3K of Benjeng Subdistrict, it can be concluded that the service that has been provided by the government apparatus, in which the extension agents in this study have been running well. The farming communities are also satisfied with the service, which also shown from 12 service indicators that are considered good with 'B' grade for the service quality.

The supporting and inhibiting factors that affect the satisfaction of the farming community toward the agricultural extension service in BP3K of Benjeng Subdistrict are:

Supporting Factors:

- Ease of extension procedures;
- No extension requirements;
- Delivery of clear information by extension agents;
- Timeliness of extension schedules;
- Very responsible extension agents;
- Competent extension agents;
- Responsive extension agents;
- Fair services in getting extension services;
- Compatibility of the material with the needs of the farming community;
- Agents' presence at every farmers' meeting/event.

Inhibiting Factors:

- Lack of demonstration plots and extension equipment;
- Lack of effective cooperation with other parties, such as follow-up of cooperation that has not been fully implemented;
- Lack of intensity of extension visits.

The alternative efforts that can be done by the BP3K of Benjeng Subdistrict to maintain and increase the satisfaction of the farming community toward the performance of agricultural extension service based on 14 indicators that have been tested is by maintaining the service performance from 11 indicators that have been assessed good by the farming community, and carry out performance improvement toward 3 indicators with low score given by the community.

REFERENCES

1. Abubakar AN. dan Siregar. 2010. Kualitas Pelayanan Penyuluhan dan Kepuasan Petani dalam Penanganan dan Pengolahan Hasil Ubi Jalar (*Ipomoea batatas* L.). *Jurnal Penyuluhan Pertanian* 5 (1).
2. Al-zahrani, K. H., et al. (2019) 'Saudi Journal of Biological Sciences Perceptions of wheat

- farmers toward agricultural extension services for realizing sustainable biological yields', Saudi Journal of Biological Sciences. King Saud University, (xxxx), pp. 2–7. doi: 10.1016/j.sjbs.2019.02.002.
3. Fagi A.M. 2001. Food Agricultural Extension System. Participatory Extension Revitalization thus minded: Agribusiness. Working Paper 08/2001. IAARD
 4. Feliciano, D., Nayak, D. R., Vetter, S. H., & Hillier, J. (2017). CCAFS-MOT-A tool for farmers, extension services and policy-advisors to identify mitigation options for agriculture. *Agricultural systems*, 154, 100-111.
 5. Ibrahim A. 2008. Theory and Concepts and Implementation of Public Service. Bandung: Mandar Maju.
 6. Kansime, M. K., Alawy, A., Allen, C., Subharwal, M., Jadhav, A., & Parr, M. (2019). Effectiveness of mobile agri-advisory service extension model: Evidence from Direct2Farm program in India. *World Development Perspectives*, 13, 25-33.
 7. Kepmenpan Number 25 Year 2004 on General Guidelines for Preparation of Public Satisfaction Index And Services Unit Government Agencies
 8. Kepmenpan Number. 63 of 2003 on General Guidelines for the Implementation of Public Service
 9. Kemenpan Number 81 of 1993 on General Guidelines for the Implementation of Public Service
 10. Kotler, P. 2005. Marketing Management, Issue Eleven, Volume 1.2. Jakarta: Gramedia Group Index
 11. Khatri-Chhetri, A., Pant, A., Aggarwal, P. K., Vasireddy, V. V., & Yadav, A. (2019). Stakeholders prioritization of climate-smart agriculture interventions: Evaluation of a framework. *Agricultural Systems*, 174, 23-31.
 12. Kurniawan, J. Rogan and Mokhammad Najib. 2008. Paradigm Public Service Policy. Malang: In.Trans.
 13. Law of the Republic of Indonesia Number 16 Chapter 2 Article 4 of 2006 on Agricultural Extension System, Fisheries and Forestry
 14. Mosher, A.T., 1997. Moving and Build Agriculture. Yasa Guna. Jakarta
 15. Nataliningsih. 2013. Dampak Toward Participatory Agricultural Extension Farmers Welfare Improvement Starter. Universitas Bandung Raya.
 16. Olorunfemi, T. O., Olorunfemi, O. D., & Oladele, O. I. (2019). Determinants of the involvement of extension agents in disseminating climate smart agricultural initiatives: Implication for scaling up. *Journal of the Saudi Society of Agricultural Sciences*.
 17. Padmowihardjo, S., 1996, the Agricultural Extension Program. Jakarta: Universitas Terbuka.
 18. Soedijanto. 1996. Administration of Agricultural Extension. Universitas Terbuka. Jakarta.
 19. Suwandi. 2006. Participatory Extension. Bogor: Cekza Blog.

DOI 10.18551/rjoas.2019-08.22

THE ROLE OF COMMUNICATION IN RESOURCE AND ENVIRONMENTAL CONFLICTS IN COASTAL COMMUNITIES OF BANTEN BAY

Muldi Ail*

Communication Studies Program, FISIP Untirta, Indonesia

Sumardjo, Kinseng Rilus A., Sugihen Basita Ginting

Department of Communication Science and Community Development, FEMA IPB, Indonesia

*E-mail: ail.muldi@untirta.ac.id

ABSTRACT

Sea sand mining activities in Banten Bay from 2003 to 2016 have triggered conflicts between local governments, companies and coastal communities. The mining of sea sand by the company is intended to meet market demand for island reclamation in Jakarta Bay, Indonesia. Conflict is created because the communication between the regional government and the coastal community has not been effective in granting mining business licenses to the company. The research aims to analyze the role of communication between conflicting parties at each stage of resource and environmental conflicts in Banten Bay. The research was conducted using qualitative methods through participatory observation, documentation studies and in-depth interviews with informants representing groups of fishermen, community leaders, NGO activists, local governments and sea sand mining companies. The results showed that in the absence of communication between parties involved in the conflict, the form of communication that is manipulative and instructive is an ineffective communication approach in managing potential conflicts. Communication between parties involved in the conflict works effectively with a dialogical communication approach because it facilitates the conflicting parties to understand each other, reach agreement and share roles. Communication determines the transformation of society into conflict groups. Open conflict is manifested in the forms of peaceful actions, joint protest actions, riots, and radical actions. The intensity and escalation of conflict are related to the communication of the parties involved in the conflict during the conflict periods.

KEYWORDS

The role of communication, resource and environmental conflicts, coastal communities, Banten Bay.

Sea sand mining activities that are not synergistic with the interests of the community have triggered conflicts between coastal communities, local governments, and sea sand mining companies. The dominance of access to the use of natural resources causes conflicts between government, companies and local communities. Conflict is caused because people feel marginalized in access to natural resources and efforts to meet their needs. The Serang Regency Government has an interest in sea sand mining activities in Banten Bay as local own-source revenue (PAD) through non-metal mineral retributions and taxes. The realization of taxes from sea sand mining activities in 2015 reached 41 billion with sea sand exploration 15 million / m³, from the taxpayer of PT. Jetstar, PT.MCA and PT. Hamparan Laut Sejahtera (DKPESDM Serang Regency, 2016). The policy on the exploitation of sea sand as a business commodity is influenced by the demand for sandstone for the reclamation activities of island C and island D in Jakarta Bay (PT. KNI, 2012). Government and company policies are full of the interests of funders from outside parties.

A top-down policy approach in natural resource management that does not look at the needs of the community and involves the community in making decisions about resource control has a high potential for conflict. Conflicts between the government and the community relating to the control of natural resources are caused by the government making regulations

and policies on natural resource management only to protect its interests and impose its rules on civil society, while the rules are detrimental to society and encourage people against the state to defend their rights. Besides, technical aspects, ways of organizing government, implementing policies, development programs and roles that intersect with the interests of the community (Sumardjo, 2015).

Conflict always changes following social interaction. Conflict, in general, is a cycle from the emergence of conflict to its resolution which does not always lead to linear mode. Conflict cycle (Engel and Korf, 2005), consists of (1) latent stages, potential hidden conflicts. Latent conflict refers to social tensions, differences, and disputes that are hidden or growing, (2) conflicts emerge on the surface gradually and continue to develop rapidly in response to various events that are the cause of conflict and parties to the conflict begin to emerge, identified and enter the public sphere, (3) manifest stage, the difference becomes more prominent between the parties involved in the conflict and focused on group dynamics, (4) escalation, the stage where the level of tension, threats and violence increases.

Interest groups that are closed (latent) increase to be open (manifest) if there are leaders who are brave with conflict relations, groups have conflict ideology, group members are free to organize conflicts and have members who are committed and communicate with others (Dahrendorf, 1986). Conflicts become real (manifest) depends on the communication process in building the identity of members and group collectivity in conflict groups (Kriesberg, 2011).

Sumardjo et al., research (2010) emphasizes the trust between related parties in the utilization of natural resources is a key factor for the effective management of community conflicts around the mine. Conflicts must be managed when conflicts are at a latent stage before they arise and increase to escalation (Engel and Korf 2005). Grievance and conflict management at the latent stage is carried out by building communication between stakeholders and identifying potential conflicts at an early stage to prevent escalation (Kapelus et al., 2011).

Conflict resolution approaches are categorized in two dimensions, namely cooperation/non-cooperation and decisive/indecisive, consisting of five kinds of approaches (Sumardjo et al., 2014) namely, (1) Competition, the resolution of conflicts that occur with one party defeating/sacrificing the other party, termed a win-lose orientation; (2) Accommodation, conflict resolution is done by giving the whole settlement to the other party without fighting for its own goals; (3) Sharing, a compromise approach to conflict resolution between the domination of a group and peaceful groups; (4) Collaboration, a conflict approach that is done by satisfying both parties, an approach to problem solving and integration of the parties involved in the conflict; (5) Avoidance, is the ignorance of both parties or circumstances to draw the interests of the group from conflict.

Dialogue is a communication technique that respects relationships above individual reviews, positions, and interests. The process of communication using dialogue is one way to manage conflict. Dialogue encourages participants to find the core problem, build respect, defuse polarization/difference and build collaboration (Littlejohn and Domenici, 2001). Communication has a strong positive effect on inter-group cooperation in various types of social dilemma (Balliet, 2010). Collaboration has proven beneficial for collaboration in conflict (Cowan and Arsenault, 2008). Kaye (1994) suggests the stages in the collaborative approach which are divided into three issues, namely (1) problems and needs, (2) solutions, and conflict resolution, (3) plans and actions.

The focus of this research problem is the communication of local governments, companies and coastal communities in the phases of resource and environmental conflicts in coastal communities in Banten Bay. The formulation of the problem is how the communication role of the parties involved in the conflict in managing the potential conflict at the latent stage? How is the role of communication in the transformation of quasi groups into conflict groups? How is the role of communication in open conflict and its escalation? The research aims to analyze the communication of parties involved in the conflict at each stage of resource and environmental conflicts in coastal communities in Banten Bay.

METHODS OF RESEARCH

The research approach uses a qualitative approach with case studies (Creswell, 2007). The research was conducted in July 2017 to July 2018. The research sites were coastal villages and small islands in the Banten Bay area which became the location of sand mining including Lontar Village, Wargasara Village, Tunda Island, Tirtayasa District and Pulau Panjang Village, Pulo Ampel District, Serang Regency.



Figure 1 – Sea Sand Production Operations map in Banten Bay (Distamben Banten, 2017)

Primary data sources were collected by participant observation and in-depth interviews with 18 informants consisting of fishermen groups, community leaders, NGO activists, local governments and sea sand mining companies. Secondary data collection is carried out with a literature study of previous studies and documentation studies, including news from local and national newspapers and other government documents. Data analysis was performed using an interactive model (Miles et al., 2014).

RESULTS AND DISCUSSION

Poorly managed stakeholder communication triggers conflicts between local governments, companies and coastal communities put their lives on coastal and ocean areas in Banten Bay. Conflict of coastal communities in Banten Bay based on the factors causing them (Satria 2009) is a conflict of resources and environment, mining of sea sand cause damage to coastal and marine ecosystems as well as harming the coastal communities. The type of conflict is a structural conflict between the local government, companies and coastal communities whose mining areas cover Lontar, Wargasara, and Pulau Panjang Villages (Figure 1).

Sea sand mining activities became the main problem of conflicts that occurred in three rounds of conflict in 2003-2004, 2011-2014 and 2015-2016 (Table 1). Referring to the stages conflict of the Engel and Korf (2005), each round of resource and environmental conflicts in the Banten Bay begins with closed (latent), emerging, opened (manifest) conflicts, and escalation of conflicts accompanied by increased violence in its settlement. The conflict did not only involve three villages that became mining sites but also extended to coastal villages on the North Coast of Banten Bay.

Sand mining is carried out after the company obtains a Production Operation MBL (MBL PO) from the local government. The granting of MBL PO by the local government to a sand mining company is a form of authority transformation that places the company as the authority's owner. Viewed from its position, the conflict of coastal communities with local governments and companies is a vertical conflict, a conflict between parties who have authority and who do not have authority.

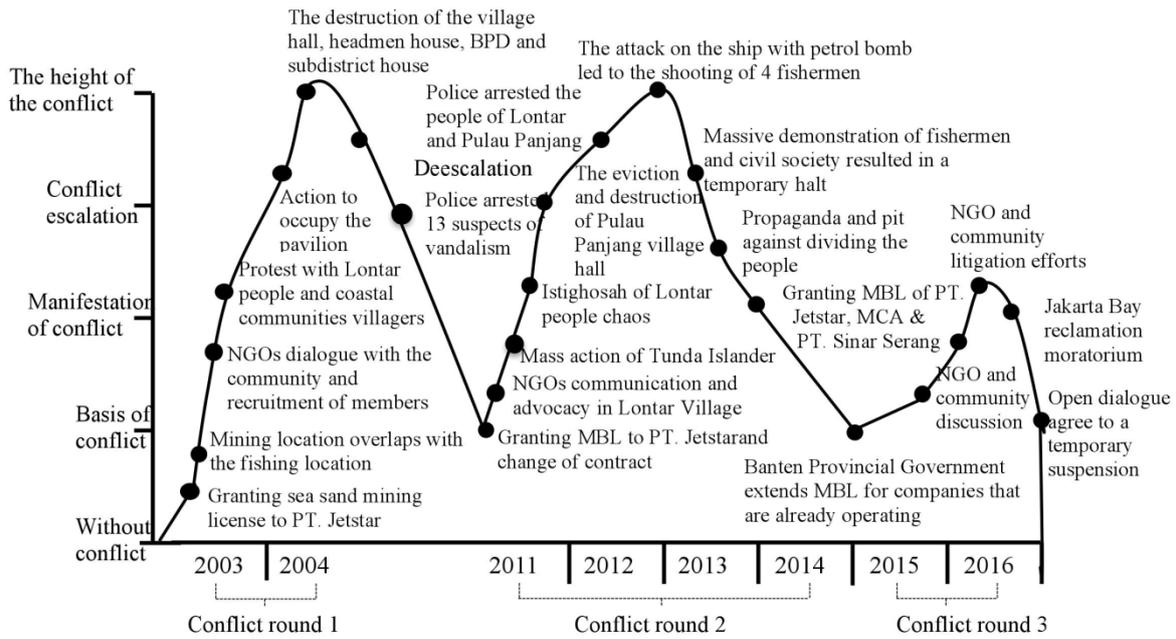


Figure 1 – The cycle of resources and environmental conflict of coastal communities in Banten Bay

In the beginning, the coastal community did not know about sea sand mining because the local government did not convey information on sea sand mining to coastal communities as affected communities. Local governments communicate with coastal communities in the process of granting Mining Business License (MBL) after the issuance of Environmental Management and Protection Law number 32 of 2009 which requires companies to prepare AMDALs and obtain environmental permits by involving affected communities. Changes to regulations that require community involvement, facilitate communication between local governments, companies and affected communities in managing potential conflicts.

The government and company communication approach to coastal communities in the process of granting MBP is manipulative because it is carried out to obtain an attendance list of participants in the socialization of sea sand mining which is converted into a document of community approval of sea sand mining activities as required in Minister of Environment Regulation No. 17 of 2012 concerning guidelines for involvement community in the AMDAL process and environmental permit. The local government and the company socialized sea sand mining activities in Banten Bay to the coastal communities at the beginning of the 2011-2014 conflict round. However, the regional government and the company did not seriously involve coastal communities in the process of granting MBP. The government and companies communicate with the public aiming to manipulate the requirements of environmental permit documents.

Likewise in the 2015-2016 conflict round, local governments and companies communicated in an instructive manner to coastal village communities about sea sand mining activities and the community received compensation funds for the Corporate Social Responsibility (CSR) program from the company. The instructive communication of the local government and the company is coercive because there is no room for dialogue with coastal communities and participant relations of communication seem to occur between superiors and subordinates. The government and the company conveyed the message to the coastal community that the community could not refuse because the company had a valid permit from the local government that was authorized to use the coastal and sea resources of Banten Bay.

The approach of local government and company communication to coastal village communities that goes in one direction (monologue) closes the space of coastal communities to convey their views and aspirations towards sea sand mining activities. Local government and company communications aimed at deceiving and coercing coastal communities to

accept sea sand mining show that the communication participant structure of local governments and companies is more dominant. local government and company communication that is top-down, manipulative, and instructive are ineffective in creating mutual understanding and convergence of interest in affected communities. Ineffective communication becomes a source of problems between local governments, companies and Coastal communities during the conflict periodization. Illustrated in Figure 2, the competition and collaboration approach to conflict management was developed from Sumardjo et al., 2014, Cowan and Arsenault 2008, Kaye 1994.

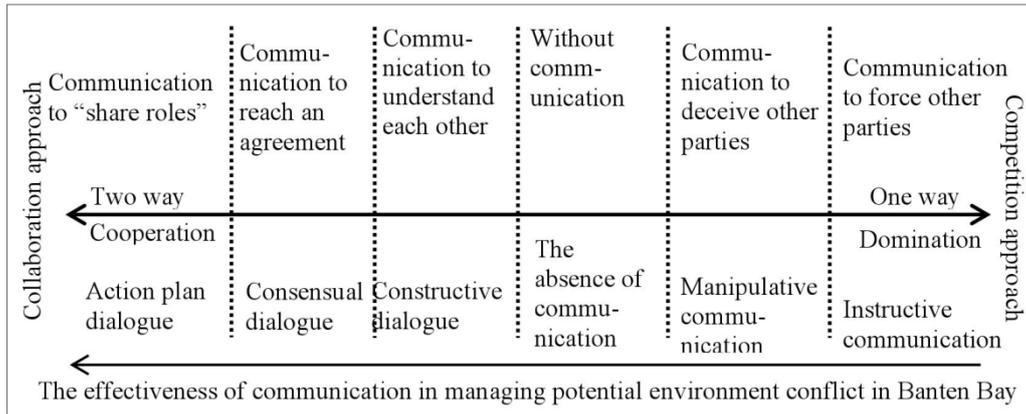


Figure 2 – The effectiveness of communication in managing potential conflict

Local governments and companies tend to learn from conflict experiences with coastal communities. Local governments and companies take a different communication approach than before in managing potential conflicts. They use the communication approach in managing potential conflicts with small island communities in the form of 1) constructive dialogue with local government, companies and small island communities facilitating the explanation of the company's need to get community support, the community's need for company CSR funds as alternative community income and village development, and the need for tax revenue from sand mining activities to increase local own-source revenue, (2) consensual dialogue facilitates the agreement of the small island village community to support sea sand mining activities and obtain profit-sharing from the production of sea sand in the form of corporate CSR in the amount of Rp. 1,000 / m3, (3) the action plan dialogue results in a CSR fund distribution plan through a CSR management team managed by the community and community involvement in securing the sea sand mining production process, as illustrated in Figure 2.

The communication approach of local government and company to small island communities is two-way communication with equality of communication between communication participants. Constructive dialogue facilitates communication participants to understand each other's needs and interests. Consensual dialogue encourages communication participants to reach a conflict solution in the form of an agreement that meets the interests of both parties as a conflict solution (win-win solution). The action plan dialogue regulates the role of communication participants / conflicting parties to work together to support what has been agreed on.

Communication between local government and companies with coastal communities that are one-way, manipulative and instructive in managing potential conflicts results in patterns of conflict relations. Whereas the communications between local government and company with small island communities that are interactive through constructive dialogue, consensual dialogue and action plan dialogue result in patterns of equal relations and cooperation. Communication between local government and companies with small island communities tends to be effective in managing potential conflicts, preventing open conflicts and escalation. On the contrary, the communications between local government and

company with coastal communities tend to be ineffective and form the basis of resource and environmental conflict of coastal communities in Banten Bay (Figure 2).

Non-governmental organizations (NGOs) communicate with groups of fishermen, seaweed and fish farmers on the issue of environmental damage caused by sand mining activities that have an impact on gaps in the access of coastal communities to fisheries resources in Banten Bay. NGO communication encourages the collectivity of the interests and actions of groups of fishermen, seaweed and fish farmers as quasi groups to transform into conflict groups, illustrated in Figure 3. Conflict groups are created when coordinated groups realize their interests objectively and collectively (Turner, 1998). The parties involved in resource and environmental conflicts in Banten Bay are divided into two groups, namely the pros and cons of sea sand mining.

In the context of access to fishery resources in the Banten Bay, groups of fishermen, seaweed cultivator, and fish farmers are quasigroups that can turn into conflict groups whenever there is a trigger. NGO communication in the form of face-to-face communication, open dialogue, group discussions, and the village coordinator's communication network makes coastal communities realize their interests objectively and collectively so as to form conflict groups. Communication between NGOs and community groups in coastal villages and small islands triggers conflict in each round of conflict.

One important element in the transformation of quasi groups coastal community into conflict groups is that the village NGO coordinators are mostly fishermen who own the boat (skipper), financiers (customers) and fish collectors (small tradeswoman). The relation of the skipper, costumer, and small tradeswoman authority is closely related to the structure of the fishing class in Banten Bay. The majority of fishermen in Banten Bay based on the structure of the Kinseng fishing class (2014) are fishing laborers and small fishermen who have a dependency on the skipper, customer, and small tradeswoman. The relationship between the skipper and the fishing laborers, customers and small tradeswoman with the skipper is patron-client and dominant-subordinative in line with what was revealed by Kinseng (2013). The leadership structure of the NGO village coordinator, mostly as a skipper, customer, and small tradeswoman in a fishing group, played an important role in the formation of conflict groups.

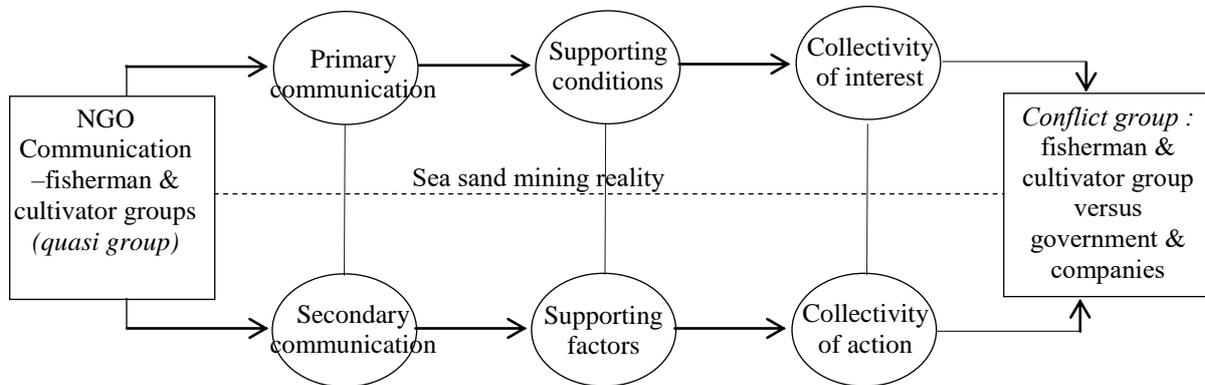


Figure 3 – The role of NGO communication in the transformation of conflict groups

Coastal communities involved in the conflict are coastal villages in the Districts of Pontang, Tirtayasa, and Tanara (Pontirta). This is due to the fishermen fishing in the waters of Lontar are fishermen in the District of Pontirta, sand mining operations extend to the north coast, and the role of communication and advocacy of NGOs to the communities of the north coast villages. The conflict has spread to the small island community due to NGOs and fishermen TPI Lontar communicating and advocating for small island fishermen as the location of the mine moves to the small islands. The leadership of small island village fishing groups is dominated by fishermen who were previously involved in coastal village conflicts.

Conditions that support community groups in coastal villages and small islands to become conflict groups are: (1) NGOs become opinion leaders/sources of information and

actions of groups of fishermen and farmers to get involved in the conflict, (2) the caretaker of an NGO that has power relations with fishermen becomes the leader of the fishermen and farmers group, (3) the leaders of the fishermen and cultivator groups organize the coastal community without weakening efforts from the local government and the company as the dominant group, (4) fishing group members and cultivator communicate actively and intensely with other group members for member recruitment.

Conflicts become real (manifest) depend on the communication process in building member identity and group collectivity in conflict groups. Direct NGO communication (primary communication) and through the communication network (secondary communication) of village coordinators to coastal and small islands communities play a role in the formation of the collective identity of fishing and cultivator groups. The success of NGO communication in the formation of collective identity refers to Kriesberg (2011) supported by the following factors: (1) homogeneity of members, characteristics of coastal communities that have similarities, that is, hanging livelihoods from the ocean tends to form a shared identity, (2) ease of communication, aspects of personal closeness (proximity) between rural communities that are familial facilitate the formation of a shared identity, (3) a sense of solidarity, coastal communities as sand mining-affected communities tend to have solidarity because they have the same fate, (4) organizational potential, social relations between fishermen with skipper, customer and small tradeswoman encourage collective interest and mobilization.

Communication and advocacy of NGOs to coastal village and small islands communities interactively encourages the interests of the group that are closed (latent) becomes opened (manifest) in the form of: (1) solidarity of the interests of fishing and cultivator groups, (2) identities of conflicting pros and cons groups of sand mining (ingroup versus outgroup), (3) collectivity of actions to refuse sea sand mining activities in Banten Bay. Interaction of NGO communication with various village groups, community groups, youth organizations, students and through various action plans to build the cohesiveness of the counter group of sand mining.

Coastal communities in Banten Bay are encouraged to get involved in resource and environmental conflicts because they are related to livelihoods and meeting the needs of life for coastal communities who work as fishermen. Research Yang et al., (2014) and Perc et al., (2013) asserts that the involvement of local communities in resource and environmental conflicts is due to economic interests. Resource and environmental conflicts tend to involve affected local communities. Involvement of local community conflicts occurs because it does not involve local participation (Liu et al., 2012). Conflicts between coastal communities, regional governments and companies occur openly (manifest) in the communication interactions of the parties involved in the conflict during the conflict periodization in 2003-2004, 2011-2014 and 2015-2016.

The conditions that propel conflict manifestations (Kriesberg, 2011) relevant to conflict in coastal communities in Banten Bay include: (1) local governments and companies as opposing parties whose interests are not in line, (2) members of conflict groups consisting of fishermen and cultivators feel disadvantaged due to sea sand mining because they seem to have less access to resources than they should, (3) group members believe that local governments and companies are responsible for their complaints, (4) group members believe that the involvement of the conflict in the form of mobilization will change the mining policy of sea sand. Changes in conditions of manifestations of conflict and communication interactions of conflicting parties have implications for conflict output that are destructive or constructive.

Conflict manifested in four forms of action (Table 1), namely (1) peaceful action, mass demonstrations to local governments and other state institutions to make complaints, check the truth of information, express aspirations and report violations of the production operations of sea sand mining; (2) joint protests, community demonstrate in a group to criticize policies, express resistance, demand and threaten local governments to stop the mining of sea sand; (3) riots, joint protests with riots and acts of destruction of local government public facilities, up to (4) radical actions, expressions of anger carried out in the form of acts of judgment,

assault and intimidation in groups to local government officials and company impacted on human rights violations and material destruction.

Each coastal community in Banten Bay has a different level of involvement in open conflict and conflict periods. The people of Lontar Village and the north coast were involved in an open conflict in the form of peaceful actions, joint protests, riots and radical actions with local governments and companies during the entire conflict period (2003-2016). Pulau Panjang villagers were involved in an open conflict in the form of peaceful actions up to radical actions only during the 2011-2014 conflict period. Whereas the people of Warga Sara Village were involved in an open conflict only in the form of peaceful actions and protests during the 2011-2014 conflict period. According to Yang et al., (2012; 2013), the intensity of conflict that varies from each location of environmental conflict is related to information gaps, variations in perceptions and individual characteristics of local communities.

The most dominant form of conflict involvement that occurs in coastal communities is peaceful action and joint protest actions. The involvement of local community conflicts in resource and environmental conflicts is in line with research Yang et al., (2013), Zhang et al., (2013) and Wakefield et al., (2006), describing community involvement in China in conflict is the need to convey aspirations in environmental policy decision making. Peaceful protests and joint protests also increased because of the political system in Indonesia after the reform was more democratic than before. Fishermen in the reform era tend to fight for their interests openly (Kinseng, 2017). The people of the coastal villages and small islands in Banten Bay held a demonstration to the local government to express their opinions, attitudes, and actions in public space freely, openly and without pressure.

Coastal communities tend to carry out peaceful actions against local governments at the beginning of the open conflict. When local governments do not handle conflicts quickly or protracted, then community actions tend to escalate into joint protests and riots. There is a tendency for coastal and small island communities to commit verbal violence and riots when large numbers of participants demonstrate. The people of the coastal and small island who are emotional tend to take radical action. According to Coser, conflicts in the form of violence usually occur for unrealistic reasons (in Kinseng, 2007). In this case, the reason was realistic, but the conflict manifests in the form of violence and it is because of the fulfillment of basic needs problems. This can be seen from Table 1, radical action became the peak of the conflict in the history of resource and environmental conflicts in Banten Bay.

Radical action is closely related to the loss of public trust in local governments and companies, which causes coastal communities to tend to "vigilante" to achieve their interests collectively. It is very difficult to manage resource and environmental conflicts in Banten Bay effectively when the conflict escalates in the form of radical action. This is because effective conflict management requires trust between parties to the conflict (Sumardjo et al., 2010). Conditions that underlie the easily escalating intensity of conflicts are problems of poverty, economic urgency and feelings of life uncertainty causing the intensity and escalation of conflicts to peak easily as explained by Dharmawan (2006). The dominance of natural resources that are the source of community livelihood triggers radical conflicts (Sumardjo, 2015).

CONCLUSION

Solutions to resource and environmental conflicts in coastal communities at the mine site require management, especially at the latent stage / potential conflicts before fishing groups turn into conflicting interest groups. The collaborative approach with communication dialogue techniques between conflicting parties at a latent stage in the case of small island communities plays a role in preventing open conflict and suppressing greater escalation. This is in line with Kapelus et al., (2011) and Engel & Korf (2005). The competition approach with manipulative and instructive communication techniques triggers open conflict and reinforces it. Communication plays a role in the transformation of awareness of fishing groups into conflict groups. The transformation of fishermen into conflict groups is closely related to the structure, power relations and economic system of fishermen in Banten Bay. The parties

involved in resource and environmental conflicts in Banten Bay tend to learn from previous conflict experiences. Communication between fishermen groups and small island communities and sand mining production operations that extend to small islands has caused small island communities to conflict with local governments and companies.

Open conflict occurs after fishermen formed conflict groups that openly fight for their interests (manifest). When an open conflict escalates, turns out that it is difficult to manage a win-win solution approach, because each party competes with one another to win the conflict. Open conflict conditions make each party distrust each other so that managing conflict is difficult to do effectively. Coastal people who ignited emotionally commit violence because of the problems of livelihood and basic needs.

REFERENCES

1. Balliet D. 2010. Communication and cooperation in social dilemmas: A meta-analytic review. *J. Conf Res.* 54:39. doi: 10.1177/0022002709352443.
2. Cowan G, Arsenault A. 2008. Moving from monologue to dialogue to collaboration: The three layers of public diplomacy. *The ANNALS Amer Ac Pol Soc Sci.* 616: 10. doi: 10.1177/0002716207311863.
3. Creswell JW. 2007. *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. Second Edition. California: Sage Publications.
4. Dahrendorf R. 1986. *Konflik dan Konflik dalam Masyarakat Industri: Sebuah Analisa Kritik*. Jakarta (ID): CV Rajawali.
5. Dharmawan AH. 2006. *Konflik-sosial dan resolusi konflik: Analisis sosio budaya dengan fokus perhatian Kalimantan Barat*. Makalah Seminar PERAGI Pontianak 10-11 Januari 2006.
6. Distamben Banten. 2017. *Peta Sebaran Izin Usaha Pertambangan Operasi Produksi (IUP OP) Komoditas Pasir Laut*. Serang (ID): Dinas Energi dan Sumber Daya Mineral Provinsi Banten.
7. DKPESDM Serang Regency. 2016. *Buku Profil*. Serang (ID): Dinas Kelautan, Perikanan, Energi dan Sumber Daya Mineral Kabupaten Serang.
8. Engel A, Korf B. 2005. *Negotiation and mediation techniques for natural resource management*. Food and Agriculture Organization of the United Nations (FAO), Rome.
9. Kapelus P, Richards E, Sherwin H. 2011. *Conflict-sensitive impact assessment*. In: Vanclay F, Esteves AM, editors. *New Directions in Social Impact Assessment*. Cheltenham (GB): Edward Elgar Publ. p 288-305.
10. Kaye M. 1998. *Communication Management*. Sydney: Prentice Hall Australia.
11. Kinseng RA. 2007. *Konflik-konflik sumberdaya alam di kalangan nelayan di Indonesia*. *SODALITY*. 1 (1): 87-104. doi: 10.22500/sodality.v1i1.5936.
12. 2013. *Identifikasi potensi, analisis dan resolusi konflik*. Di dalam: Nikijuluw VPH, Adrianto L, Januarini N, editor. *Coral Governance*. Bogor (ID): IPB Pr. hlm 335-372.
13. 2014. *Konflik nelayan*. Jakarta (ID): Diterbitkan atas kerja sama antara Departemen Sains Komunikasi dan Pengembangan Masyarakat, Fakultas Ekologi Manusia IPB dengan Yayasan Pustaka Obor Indonesia.
14. 2017. *Decentralisation and the Living Conditions and struggle of Fishers: A Study in West Java and East Kalimantan*. *J. Sus Dev.* 10 (2): 71-82.
15. Kriesberg L. 2011. *Constructive conflict: From escalation to resolution (3rd)*. Lanham, MD: Rowman and Littlefield Publisher, Inc.
16. Littlejohn SW, Domenici K. 2001. *Engaging communication in conflict: systemic practice*. London: Sage Publication Inc.
17. Liu, LX, Zhang B, Bi J. 2012. *Reforming China's multi-level environmental governance: lessons from the 11th Five-Year Plan*. *Environ. Sci. Policy.* 21, 106-111.
18. Miles MB, Huberman M, Saldana J. 2014. *Qualitative Data Analysis: A Methods Sourcebook*. Third edition. California (US): Sage Publications.
19. Perc M, Gomez-Gardenes J, Szolnoki A, Floria LM, Moreno Y. 2013. *Evolutionary dynamics of group interactions on structured populations: a review*. *J. R. Soc. Interf.* 10,

- 1-17.
20. PT. Kapuk Naga Indah (PT KNI). 2012. Analisis Dampak Lingkungan (Andal) Reklamasi Pantai Kapuk Naga Indah (Pulau 2A, 2B dan 1) di Kawasan Pantai Utara Jakarta Kelurahan Kapuk Muara dan Kamal Muara, Kecamatan Penjaringan, Kota Administrasi Jakarta Utara. Jakarta (ID): PT. KNI.
 21. Satria, A. 2009. Ekologi politik nelayan. Yogyakarta: LkiS.
 22. Sumardjo, Syarief R, Kriswantriyono A. 2010. Analisis pengelolaan potensi konflik di masyarakat sekitar tambang berbasis ketahanan pangan dan energi. Di dalam: Prosiding Hasil Seminar IPB. Bogor (ID): LPPM IPB.
 23. Riyanto S, Saleh A, Dahri, Firmansyah A. 2014. Tipologi konflik berbasis sumber daya pangan di wilayah perkebunan sawit. *J. IP Indo.* 19 (3): 189-196.
 24. 2015. Pemberdayaan: Alternatif perluasan strategi deradikalisasi. Makalah utama disampaikan dalam seminar nasional di IPB Convention Centre 13 Oktober 2015.
 25. Turner, J. H. 1998. *The Structure of Sociological Theory (Fifth Ed)*, Wadsworth Publishing Company. Belmont, California.
 26. Wakefield SE, Elliott SJ, Eyles JD, Cole DC. 2006. Taking environmental action: the role of local composition, context, and collective. *Environ. Manage.* 37 (1), 40-53.
 27. Yang D, Qiu Q, Liu W. 2012. Complementary zoning frameworks for sustainable management of eco-economic capital: a case study of Lijiang, China. *J. Mountain Sci.* 9, 760-769.
 28. Lin Y, Gao L, Sun Y, Wang R, Zhang G. 2013. Process-based investigation of environmental pressure from urban household consumption. *Energy Policy* 55, 626-635.
 29. Kao WTM, Huang N, Wang R, Zhang X, Zhou W. 2014. Process-based environmental communication and conflict mitigation during sudden pollution accidents. *J Cleaner Prod.* 66(7):1-9.doi:10.1016/j.jclepro.2013.11.023.
 30. Zhang L, He G, Mol APJ, Lu Y. 2013. Public perceptions of environmental risk in China. *J. Risk Res.* 16 (2), 195-209.

DOI 10.18551/rjoas.2019-08.23

THE EFFECT OF EXPERIENTIAL MARKETING AND PSYCHOLOGICAL PRICING ON REPURCHASE INTENTION OF CUSTOMERS IN STORE X

Poetri Marsya Oktriana

Department of Industrial and Organizational Psychology, Faculty of Psychology,
University of Airlangga, Surabaya, Indonesia

*E-mail: marsya.acha@gmail.com

ABSTRACT

Increasingly sophisticated technology makes it easy for consumers to find everything they are looking for in a short time. The increasing competition requires marketers to have new marketing methods that are different from competitors. Experiential marketing is a topic that has been widely discussed by marketers to attract consumer's attention. Schmitt (1999) explains that experiential marketing is a marketing and management method that is driven by the experience of consumers. Consumers who feel great experiences when purchase, will produce customer satisfaction and loyalty so that it will form consumer repurchase intentions. Pride & Ferrel (Ahmed & Baruah, 2017) said psychological pricing is determined to influence consumer emotions in making decisions related to purchasing. Farisyah's research (2012) shows that there is an influence of experiential marketing on repurchase intentions. However, there are still few studies that discuss the effect of psychological pricing on the repurchase intention variable. This study aims to examine the effect of experiential marketing and psychological pricing on repurchase intentions. This research was conducted on consumers who have made purchases at store X, the number of participants was 72 people. This study uses an experiential marketing scale (Schmitt, 1999), repurchase intention scale (adapted Farisyah, 2012) and psychological pricing scale compiled by researchers based on Larson's theory (2014).

KEY WORDS

Experiential marketing, psychological pricing, repurchase intention, marketing.

The world industry is currently entering the era of the industrial revolution 4.0 which makes it easy for consumers to meet their needs. Increasingly sophisticated technology makes it easy for consumers to find everything they are looking for in a short time. However, this is different from the marketer's point of view. Industry 4.0 is a pretty fierce condition for marketers. They are competing to market their products/services to be attractive to consumers. The increasing competition requires marketers to have new marketing methods that are different from competitors. Ramya & Ali (2016) said there are at least 5 (five) factors that can be influenced consumers to purchase a product/service. There are internal or psychological factors, social factors, cultural factors, economic factors, dan personal factors.

Economic factors are still the main thing for marketers to consider in setting prices and target consumers. However, Larson (2014) said that marketers today tend to use principles developed from psychology. Basically, the psychology aspect has long been used by marketers to manipulate consumer buying behavior. Experiential marketing is one of the psychological aspects developed in the field of marketing. The psychological aspect emphasized is the consumer experience, which is expected to provide satisfaction for consumers so that they have a repurchase intention. The aim is to increase sales. Andreani (2007) defines experiential marketing refers to the real experience of consumers of the brand/product/service to increase sales and brand image/brand awareness. Schmitt (1999) emphasizes the experiential marketing focuses on four things namely consumer experience, testing the situation of consumers, influencing the rational and emotional side of consumers, using electrical methods and devices to measure consumer experiences such as brands. In addition, another psychological aspect that is also under discussion in the marketing world is

psychological pricing. Stanton (1991) mentions that there are strategies that can be used by marketers related to pricing, one of which is psychological pricing.

There are currently many shops that use experiential marketing and psychological pricing to attract consumers to purchases. The aim is to play the emotional aspects of consumers and make a significant difference with other competitor's stores. It is hoped that this will build consumer interest to repurchase so that it will provide benefits. Toko X is one of the many stores that focus on shaping good experiences for consumers ranging from unique brands, comfortable places, creative products, and eye-catching packaging. In addition, store X implements odd and even price which is included in psychological pricing on almost all of its products.

Some studies that examine experiential marketing associated with repurchase intentions (Farisya, 2012) explain that experiential marketing has an influence on repurchase intentions but not as much as if mediated by customer satisfaction. Ming (2010) said customer satisfaction results from experiential marketing that will lead to customer loyalty. Kotler & Armstrong (2012) said that loyalty is a commitment or principle held by consumers to buy and support products/services that are preferred in the future. Research Ibzani, et al (2016) about Customer satisfaction and repurchase intentions shows there is a positive relationship between the two so that satisfied consumers are likely to have an interest in repurchasing compared to consumers who are dissatisfied. Asamoah & Chovancova (2011) conducted research on the effect of price endings on consumer behavior by the application of psychological perception, the result that price endings have an influence on consumer perceptions and determine purchasing behavior. In addition, Rodhiah & Hendrik (2008) also examined price endings (odd and even prices) on consumer perceptions. The result is that price endings have an influence in determining consumer perceptions, especially those related to prices. Kotler & Armstrong (2012) states that price endings are one of psychological pricing. However, not many studies have examined the effect of experiential marketing and psychological pricing on repurchase intentions together.

Based on the explanation above, this study aims to examine the effect of experiential marketing and psychological pricing on the repurchase intention of customers in-store X.

LITERATURE REVIEW

Experiential marketing is more than just giving information to consumers to gain experience on the savings obtained after using a product/service but rather to arouse the emotions and feelings of consumers that have an impact on marketing, especially sales (Andreani, 2007). Consumers can distinguish a product/service because they have experienced firsthand (Farisya, 2012). These experiences are personal events that occur due to certain stimuli provided by marketers (Schmitt, 1999). Experiential marketing will be formed one of them because of the satisfying service that is felt by consumers (Rozaqie, 2016). There are 4 (four) ways that can be done in binding consumer experience (Schmitt, 1999), namely focus on consumer experiences that can arise due to the senses, thoughts and feelings; make the situation for consumers in accordance with the state of consumers associated with the product (packaging, advertising) to create good experiences; influences not only the rational side but also the emotional side; using electrical methods and tools to measure experiences like brands. Schmitt (1999) also explains the indicators of experiential marketing: sense (creating experiences through the five senses), feel (creating experiences through feelings and emotions), think (creating experiences through thoughts), act (creating experiences through physical, interaction and lifestyle), relate (create experiences through relationships with other consumers).

Isoraite (2016) said the price is one of the most important variables of the market which will increase profits and market prices. Prices tend to be flexible and quickly adapt to changes in the environment. Kotler & Armstrong (2012) suggested that pricing in some conditions is not in accordance with the demand and/or target marketers, so there are different pricing strategies applied by marketers. One of them is psychological pricing (Stanton, 1991). Pride & Ferrel explained that psychological pricing is the preparation and

presentation of the price of a product/service to stimulate emotions and influence consumers in the decision-making process (Ahmed & Baruah, 2017). There are 4 (four) categories of principles proposed by Larson (2014) related to psychological pricing namely framing principles (buy one get one, installments, member cards); congruency principles (accuracy of prices with other consumers, perception of the price incurred with the value obtained); context principles (colour, font, size and location of prices); signalling principles (odd and even price).

Repurchase intention is defined as consumer interest which results in the purchase of the same product/service more than once (Ibzan, et al 2016). Hume, et al (2007) describes the decision of consumers to engage in future activities with marketers. If consumers are satisfied with the services provided, customer loyalty will arise so that consumer buying interest will increase and make consumers return to purchase (Anderson, 1994). Repurchase intention occurs when consumers buy back a second or more time, the reason for repurchase is mainly triggered by the consumer's experience of the product/service (Farisy, 2012).

Store X is a store that manufactures and sells consumer products, not just emphasizing fashion. Emphasis on function compared to style so as to reduce production costs and set prices in accordance with consumer expectations. Based on observations, store X tries to provide all the needs of consumers including household appliances, beauty, stationery and so on. The arrangement is made in such a way as to make it look attractive and easy to find in stores. Store X also uses lighting that is bright enough in white so that the product can look attractive so that it plays the five senses of the consumer when they arrive. Store X applies the principle of odd prices, using odd numbers at suffixes such as 99.

CONCEPTUAL FRAMEWORK

Based on the explanation of several theories previously described, this study aims to examine the effect of experiential marketing and psychological pricing on the repurchase intention of customers in-store X. Research conducted by Farisy (2012) found that there was an influence between experiential marketing on repurchase intentions. The effect increases when customer satisfaction becomes the intermediary between the two (mediator variables). Asamoah & Chovancova (2011) conducted research on the effect of price endings on consumer behavior by the application of psychological perception, the result that price endings have an influence on consumer perceptions and determine purchasing behavior. The hypotheses in this study are:

H1: There is an influence between experiential marketing (X1) on repurchase intention (Y) on store X consumers;

H2: There is an influence between psychological pricing (X2) on repurchase intention (Y) on consumer X stores;

H3: There is a greater influence between experiential marketing (X1) and psychological pricing (X2) on repurchase intention (Y) on store consumers X.

METHODS OF RESEARCH

Participants in this study are people who have purchased in-store X at least once. The result was 72 stores X consumers who participated in this study of various ages and genders in Indonesia. The age range obtained is 17-38 years. Based on gender, as many as 16.7% of participants were male and 83.3% of participants were female from the total participants.

Experiential marketing and repurchase intention are measured using a scale adapted from Farisy (2012) and adjusted to where researchers conduct research. Experiential marketing consists of 14 items and repurchase intention consists of 5 items. Psychological pricing is measured using a scale created by researchers and refers to the theory of Larson (2014) with 9 items based on 4 dimensions.

RESULTS OF STUDY

Data analysis in this study uses simple linear regression test techniques and multiple linear regression tests. Before conducting a regression analysis, the researcher first conducts several tests as a requirement for conducting multiple regression tests such as linearity test, normality test, heteroskedasticity test, and multicollinearity test. After that researchers conducted a correlation test first by using Pearson bivariate correlation analysis. The results are as follows:

Table 1 – Correlation Test Statistical Results

No	Variable	1	2	3
1.	Experiential Marketing (X1)	1	0.518	0.530
2.	Psychological Pricing (X2)	0.518	1	0.514
3.	Repurchase Intention (Y)	0.530	0.514	1

Based on the results of the correlation test, the three correlation results in this study are classified as significant with a significance value of less than 0.05 which is equal to 0.00 at a significance level of 5%. The strength of the relationship between the three variables is high. The experiential marketing variable with psychological pricing is 0.518. The relationship between experiential marketing with repurchase intention was 0.530 and the relationship between psychological pricing and repurchase intention was 0.514. The correlation value of the three variables shows a positive relationship so that if experiential marketing increases, psychological pricing, and repurchase intention will also increase. Similarly, if psychological pricing increases, experiential marketing, and repurchase intention will also increase. The multiple regression analysis tests conducted in this study provides the following results:

Table 2 – Statistical Results of Multiple Regression Test

No	Regression Model	R Square	Value B	Beta	Significance	Information
1.	Regresi X1 ke Y	0.281	0.294	0.530	0.000	Signifikan
2.	Regresi X2 ke Y	0.265	0.452	0.514	0.000	Signifikan
3.	Regresi X1 dan X2 ke Y	0.360	0.200 (X1) 0.288 (X2)	0.360 (X1) 0.328 (X2)	0.002 (X1) 0.005 (X2)	Signifikan Signifikan

After conducting the correlation test, researchers conducted a simple linear regression test and multiple linear regression. Based on table 2 above, it is known that the results of simple linear regression analysis and multiple linear regression analyses are met with significant values. The results of multiple linear regression tests indicate that experiential marketing and psychological pricing together affect repurchase intentions by 36%. This amount is greater than the effect of experiential marketing or psychological pricing on each repurchase intention.

DISCUSSION OF RESULTS

This study aims to determine the effect of experiential marketing and psychological pricing on repurchase intentions on consumers who have made purchases in-store X. The results of statistical tests using multiple linear regression analysis indicate that there is an influence between experiential marketing and psychological pricing on repurchase intentions in-store X consumers. Based on the statistical results obtained, the three hypotheses made by the researcher are accepted. There is an influence between experiential marketing with repurchase intention by 28.1% and between psychological pricing and repurchase intention by 26.5%. These results are in line with Farisya (2014) that there is an influence between experiential marketing and repurchase intention even though the effect is not too large because it is not mediated by customer satisfaction.

However, the two percentages are not as big as the effect obtained simultaneously between experiential marketing and psychological pricing on repurchase intentions by 36%.

This is in line with Pride & Ferrel which explains that psychological pricing is the preparation and presentation of a price of a product/service to stimulate emotions and influence consumers (Ahmed & Baruah, 2017). This means that currently, experiential marketing is not the only variable used to influence consumer emotions. The value 36% is not a large amount to influence the repurchase intention variable. This percentage means that 36% repurchase intention is influenced by experiential marketing and psychological pricing simultaneously, while the other 64% is the influence of other variables not examined by researchers. Therefore, it is necessary to dig deeper into other variables that may be greater in influencing repurchase intentions.

CONCLUSION

Based on the results of this research, it can be concluded that experiential marketing and psychological pricing have an influence on repurchase intentions in store X consumers. Psychological factors such as sense, feel, think to relate and psychological prices simultaneously gradually affect the interests of store X consumers in doing repurchase. Currently, the discussion about consumer psychological things still exists and continues to grow because it is proven to have an influence on consumer behavior. Given the limitations of generalization in this study, further research is expected to replicate more diverse samples in places that have different characteristics. Future studies are also expected to consider other variables that have a greater effect on the repurchase intention variable.

REFERENCES

1. Ahmed, S. & Baruah, N.B. (2017). A Study of Perception On Psychological Pricing. *EPRA International Journal of Economic and Business Review*, 5(9), 194-200.
2. Anderson, E.W. & Sullivan, M.W. (1994). The Antecedents and Consequences of Customer Satisfaction for Firms. *Marketing Science* 12.
3. Andreani, F. (2007). Experiential Marketing. Sebuah Pendekatan Pemasaran. *Jurnal Manajemen Pemasaran*, 2(1), 1-8.
4. Asamoah, E.S. & Chovancova, M. (2011). The Influence of Price Endings on Consumer Behavior: An Application of The Psychology of Perception. *Acta Universitatis Agriculturae Et Silviculturae Mendelianae Brunensis*, LIX (7), 29-38.
5. Farisyah. (2012). "Pengaruh Experiential Marketing Terhadap Repurchase Intention Melalui Customer Satisfaction Sebagai Intervening Variabel- Studi pada Nanny's Pavillion Bathroom Pacific Place". Universitas Indonesia.
6. Iban, E., Balarabe, F., Jakada, B. (2016). Consumer Satisfaction and Repurchase Intentions. *Developing Country Studies*, 6(2), 96-100.
7. Kotler, P. & Armstrong, G. (2012). *Principles of Marketing*. New Jersey: Prentice-Hall.
8. Larson, R.B. (2014). Psychological Pricing Principles For Organizations With Market Power. *Journal of Applied Business and Economics*, 16(1), 11-25.
9. Ming, Chou You. (2010) "The Study of Repurchase Intention in Experiential Marketing- An Empirical Study of The Franchise Restaurant" National Kaohsiung Hospitality College, Departement of Hospitality Marketing Management
10. Ramya, N. & Ali, S.M. (2016) Factors Affecting Consumer Behavior. *International Journal of Applied Research*, 2(10), 76-80.
11. Rodhiah % Hendrik. (2008). Persepsi Konsumen Terhadap Perbedaan Odd prices Dengan Even Prices Studi Pada Mahasiswa Fakultas Ekonomi Universitas Tarumanagara Jakarta. *Jurnal Manajemen*, 3, 269-281.
12. Rozaqie, N., Suharyono, Kusumawati, A. (2016). Analisis Faktor-Faktor Experiential Marketing Dan Pengaruhnya Terhadap Loyalitas Pelanggan. *Jurnal Administrasi Bisnis*, 38(1), 30-39.
13. Schmitt, Bernd H. (1999). *Experiential Marketing: How To Get Customer To Sense, Feel, Think, Act and Relate*, New York: The Free Press.
14. Stanton, W.J. (1991). *Fundamental of Marketing*. Tokyo: Mc-Graw Hill.

DOI 10.18551/rjoas.2019-08.24

MILLENNIALS IN THE WORKPLACE: THE EFFECT OF PSYCHOLOGICAL CAPITAL ON WORK ENGAGEMENT WITH PERCEIVED ORGANIZATIONAL SUPPORT AS MEDIATOR

Purwasono Graheta Rara

Department of Industrial and Organizational Psychology, Faculty of Psychology,
University of Airlangga, Surabaya, Indonesia
E-mail: grahetarara@gmail.com

ABSTRACT

This study aims to examine relationship between psychological capital with work Engagement on generation Y Independent variable in this study was Psychological Capital (Luthans, et al., 2007), the dependent variable was work Engagement (Schaufeli and Bakker, 2004) and Perceived organizational Support as mediator between them. Data came from 100 employees of Y generation with an age range between 23-32 years. Instruments that used in this study was an online questionnaires, where the scale of PsyCap using PCQ, work Engagement scale using UWES questionnaire and Perceived Organizational Support scale using Eisenberger et al. (1986). Data analysis was performed using simple and multiple linear regression methods based on the mediation test analysis techniques of Baron and Kenny (1986). The results of the analysis show that perceived organizational support mediates the effect of psychological capital to work Engagement on Millennials.

KEY WORDS

Work Engagement, perceived organizational support, psychological capital, employee.

Employee workforce in an organization is dynamic and continues to change along with the replacement of retired employees and replaced by employees of the new generation (Ozcelik, 2015). But the large number of retired employees actually creates a crisis in many organizations (Eddy, et al., 2010). The crisis mentioned refers to the situation of the era of competition which is currently increasing and becomes a challenge for organizations because they have to compete in the same "pool" in searching for talented human resources, coupled with increasingly easy access to information (Goodwin & Willkinson, 2005 in Luthans, et al., 2007). In the Talent Management handbook prepared specifically by Daya Dimensi Indonesia (2012) this situation is driven by a variety of factors, including rapid organizational growth, a drastic increase in resignation rates, the withdrawal of several key people by competitors, and difficulties in retaining potential employees in the organization. This happened at the same time as the influx of generation Y into the workforce. Quoting an article in Kompas Newspaper, Indonesia is currently experiencing increasingly fierce competition for generation Y human resources because they prefer digital-based startups with interesting work cultures. This situation makes the company must find ways to get at the same time retain the best human resources (Corporation Competes Enchanting Generation Y, 2016).

Hiring Millennials, many companies realized that this generation came with different attitudes and work habits that need adaptation with existing cultures. Employing young talents who have just left college is a challenging process for the company because it has changed the culture of the company lately (Kamau, et al., 2014). Therefore, problems that arise such as the gap between generations and the number of Generation Y employees leaving their jobs for career advancement are new concerns for today's companies (Stichnote & Crow, 2010). This was also stated in an international study that found that nearly one in three Y generation employees planned to leave their current workplace and look for new career opportunities in the next few years (Deloitte, 2016). In other words, there are only a few professions whose jobs can meet the needs of Y generation employees (Codrington & Grant-Marshall, 2011).

Referring to generation Y research in Indonesia, Budiman (2008) the existence and characteristics of generation Y in Indonesia have actually been known and understood by the Industrial world. This generation is less associated with organizations, they do not like long working hours. Referring to Lloyd's research (2007, in Brown et al., 2009), one of the most significant challenges felt by companies in dealing with this generation is how they communicate effectively with previous generations (Ballenstedt & Rosenberg, 2008 in Brown et al., 2009). Many studies have noted differences in values, perceptions and communication between generations and this can lead to conflict in the workplace (Basset 2008 in Brown et al., 2009). Therefore, finding ways to understand the values of each generation is crucial for building a coherent and effective workforce (Ballenstedt & Rosenberg 2008 in Brown et al., 2009).

The problem does not stop there, the turnover problem among generation Y is a new problem which is also increasingly worrying. This is in accordance with the characteristics of generation Y who love to move because they dare to choose which companies they want to live in, have working conditions that are in line with expectations, opportunities to develop themselves, and also which companies are able to offer flexibility (Eddy, 2010). An international scale study found that almost one in three generation Y workers plans to leave their workplaces and look for new career opportunities (Deloitte, 2016). Halbesleben and Wheeler (2008) say that the relationship of work Engagement and turnover comes from the high level of investment and dedication in work. Someone who feels himself very attached to the job will be very difficult to break away from work. That is because they have invested a lot of energy in their work, and have a high meaning with their work. Conversely, if the employee does not feel attached to his job because he does not get a chance to invest his energy in the job, has a low identification and meaning in his work, they will choose to leave their company. In addition, employees feel not attached to their jobs because they do not get the opportunity to invest their energy in work, have low identification and meaning in their work so they will choose to leave their company (Halbesleben & Wheeler, 2008). Stephanie and Gustomo (2014) in their research results in one company in Indonesia said that in addition to weakening productivity and high absenteeism, increased turnover became one of the internal symptoms that showed disEngagement.

In fact, many companies, especially in Indonesia, do not yet have optimal steps, especially those that focus on internal aspects (personal resources) and also the absence of preventive measures that directly shoot the generation Y characteristics regarding what can be improved for the good of the company through the work they do. This is an important concern for writers because in addition to paying attention to external factors from individuals (job resources), organizations should look at internal factors (personal resources) of employees in increasing Engagement on work (work Engagement) based on research studies mentioned above will be negatively related with turnover intention and also positively related to positive behavior in work, organizational commitment, job satisfaction, and work improvement that bring positive impact to the organization. Research has shown that work Engagement is not only sourced from work but also from individuals themselves (Bakker & Demerouti, 2008). Bakker and Leiter (2010) that the four psychological sources contained in PsyCap (Self efficacy, Hope, Optimism, and Resilience) have a direct relationship with the three components of work Engagement (vigor, dedication and absorption). see the relationship of PsyCap and work Engagement in generation Y in this company as an additional alternative that is expected to help address issues related to generation Y in this company. It is also an alternative for organizations to make interventions that have been carried out can run more effectively and run according to their goals. And indirectly will have a positive impact on organizations such as an increase in performance (Khan, 1990 in Simons & Buitendach, 2013), organizational commitment, job satisfaction and decreased desire to leave (Halbesleben & Wheeler, 2008) job satisfaction and decreased desire to leave (Halbesleben & Wheeler, 2008).

Perceived organizational support is a concept developed based on social exchange theory. Social exchange theorists have alluded to employment as the trade of effort and loyalty for tangible benefits such as salary, compensation, and social rewards (Gould, 1979;

Levinson as cited in Rhoades & Eisenberger, 2002). According to Gouldner, when someone receives kind treatment from others, the norms of reciprocity obligate him / her to repay the kindness (as cited in Eisenberger et al., 2001). This norm also applies to the employee-organization relationship. Employees will make the efforts to show their loyalty to the organization if their contribution is appreciated and well being nurtured. Perceived organizational support is defined as the employee's belief that the organization values their contribution and well-being. Organizational support theory assumes that to determine the readiness of the organization to reward rewards for improving performance and meeting socio-emotional needs, employees develop the belief that organizations value contributions and improve their well-being. Eisenberger et al. (1986) revealed that perceived organizational support (POS) could improve employees' emotional viscosity to the organization. The term perceived organizational support generally refers to employees' beliefs about how much the organization values their contribution and well-being. Employees with fulfilled socio-emotional needs commit to an organization more easily compared to those with unfulfilled needs.

LITERATURE REVIEW

This study uses theoretical references brought by Wilmar Schaufeli and Arnold Bakker who reveal that employees who have work Engagement are energetic employees in their work activities, in addition they feel more able to handle all job demands (Schaufeli and Bakker, 2004). In addition work Engagement is a positive motivational state and self-fulfillment in work is characterized by vigor, dedication, and absorption (Schaufeli & Bakker 2004). In another sense, this condition will involve the individual in expressing himself physically, cognitively and emotionally while he is carrying out his work role. An employee with high Engagement will care and understand the business context and work with colleagues to improve performance in the group for the benefit of the company (Rich & Lepine, 2010: 635). Bakker and Leiter (2010) in his book on work Engagement defines this as a motivational concept. When employees feel attached to their jobs, they will be motivated and challenged to achieve their goals. They want to achieve success. And commit personally to achieving that success. Work Engagement also reflects the energy of the employee personally in carrying out their work.

As a motivational construct, work Engagement can be seen as the result of an individual's positive experiences on tasks in his work (Christian et al., 2011 in Park & Gursoy 2012). Individual perceptions of work experience can certainly affect what the meaning of work in the life of the individual (Park & Gursoy, 2012). Generation Y has a relaxed work value, and low concentration of work. It is expected that the younger generation like generation Y has a lower attachment than other generations in the work. In addition, work demands also have a negative effect on work Engagement when they try to meet the capacity of adaptability in their work (Bakker, 2007 in Park & Gursoy, 2012). Generation Y is very sensitive to work demands because of their work values. In considering the weaknesses of Y's priority focus in work, research states that this generation does not use their resources and energy in work, and this is what makes them have a low attachment to work (Park & Gursoy, 2012). In their research, Park and Gursoy (2012) say that in generation y, individuals who lose their motivation to be attached to work, feel their work is meaningless, feel unsuitable to the work environment, low loyalty that will bore them significantly with the organization. Conversely, when generation Y is tied to their work, it is expected that their psychological characteristics such as self-esteem are high, optimism, which makes them psychologically able to face their work. This will later lead to high job satisfaction, lower turnover intention than other generations. In addition, Generation Y who has a high work Engagement will also have lower job satisfaction and turnover intentions than other generations.

Psychological capital is defined as a positive psychological thing that is owned by each individual that is useful to be able to help the individual to develop and which is characterized by: (1) self-confidence (self efficacy / confidence) to get the job done, (2) has positive

expectations (optimism) about current and future success, (3) persevering in hoping (hope) to succeed, and (4) being resilient in dealing with various problems (resiliency) to achieving success (Luthans et al., 2007).

Perceived organizational support is a concept developed based on social exchange theory. Social exchange theorists have alluded to employment as the trade of effort and loyalty for tangible benefits such as salary, compensation, and social rewards (Gould, 1979; Levinson as cited in Rhoades & Eisenberger, 2002). According to Gouldner, when someone receives kind treatment from others, the norms of reciprocity obligate him / her to repay the kindness (as cited in Eisenberger et al., 2001). This norm also applies to the employee-organization relationship. Employees will make the efforts to show their loyalty to the organization if their contribution is appreciated and well-being nurtured.

METHODS OF RESEARCH

As many as 100 Millennials (55 males & 45 females) who have worked in Indonesia for a minimum of one year, were recruited to participate in this study. The average subject is 26 years old. These participants came from various companies. Sampling in this study using nonprobability techniques with accidental sampling method. The use of this sampling technique allows samples to be taken randomly, so that bias can occur.

This research uses a quantitative approach, where abstract ideas are transformed into specific numerical data. The numeric data is an empirical representation of abstract ideas which will be analyzed later (Neuman, 2007). Data collection using survey techniques in the form of a questionnaire in the form of a scale. There are two scales used in this study, namely the PCQ scale and the UWES scale. The work Engagement scale (The UWES) in this study was developed by Schaufeli and Bakker in 2003. In this scale there are 17 items that measure three scales namely vigor scale (strength) consisting of 6 items, dedication to work 5 items, and absorption in 6 work items with a reliability value of 0.90. Whereas PsyCap (PCQ) was developed by Luthans, et al., In 2007. In this measuring device consists of 6 points Likert scale, which represents 4 dimensions of PsyCap; hope as many as 6 items, self-efficacy: 6 items optimism: 6 items, and resiliency: 6 items, which results in 24-item PCQ with a reliability value of 0.88. The measuring tool used in this study is a psychological scale that refers to the aspects of perceived organizational support proposed by Eisenberger et al. (1986). These aspects are: showing concern over the welfare of lecturers, responding to lecturers' difficulties, caring about lecturers' work performance and responding to lecturers' ideas and opinions. The organization's support scope consists of 16 favorable items and 16 unfavorable items, amounting to a total of 32 items. The higher the obtained score, the higher the POS level on the lecturer and vice versa. The responses are given in the form of a five-point Likert scale (0 = strongly disagree, 5 = strongly agree). It has good reliability with a Cronbach alpha = 0.965

CONCEPTUAL FRAMEWORK

Based on empirical studies conducted, it is assumed that there is an influence of Psychological Capital on Work Engagement with perceived organizational support as a mediator in Generation Y.

Based on the conceptual framework above, the proposed research hypothesis is:

- Ha: There is an influence of Psychological Capital on Work Engagement with perceived organizational support as a mediator in Generation Y;
- Ho: There is no influence of Psychological Capital on Work Engagement with perceived organizational support as a mediator in Generation Y

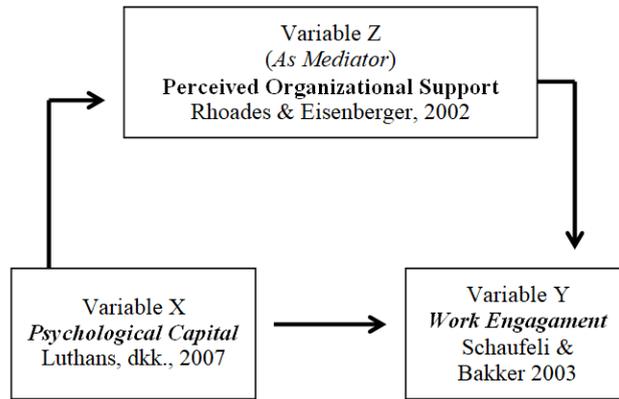


Figure 1 – Conceptual Framework

RESULTS OF STUDY

Data analysis in this study uses the mediation test technique of Baron and Kenny (1986) which states that the mediator variable analysis procedure can simply be done through a regression test. However, before conducting a regression analysis, researchers conducted a correlation test on the research variables. After the correlation test, the researchers conducted a simple linear regression test and continued with the multiple linear regression tests.

Table 1 – Correlations Statistic Result

		Y_WE	Z_POS	X_PsyC
Y_WE	Pearson Correlation	1	.594	.644
	Sig. (2-tailed)		.000	.000
	N	101	101	101
Z_POS	Pearson Correlation	.594	1	.739
	Sig. (2-tailed)	.000		.000
	N	101	101	101

** Correlation is significant at the 0.01 level (2-tailed).

Based on the results of the correlation test above, the strength of the relationship between PsyCap and POS variables is strong, which is 0.739. The strength of the PsyCap variable relationship with Work Engagement is quite strong, which is equal to 0.644. While the strength of the POS variable relationship with Work Engagement is quite strong with a value of 0.594. The three correlation results in this study are classified as significant with a significance value of all three less than 0.05 at a significance level of 5%. It is seen that the direction of the relationship of all variables is positive. Thus, when the PsyCap variable increases, the Perceived Organizational Support (POS) and Work Engagement variables will also increase.

Table 2 – Regression Analysis Results

No	Regression Model	R Square	Nilai B	Beta	Sig
1	X to Y	0,414	0,623	0,644	0,000
2	X to Z	0,546	0,646	0,739	0,000
3	X & Z to Y	0,445	0,436 (X) 0,289 (Z)	0,450 0,262	0,000 0,021

According to Baron and Kenny (1986), the effect of the independent variable on the dependent variable with the role of the mediator variable will be fulfilled if it is under three conditions, namely (1) estimating the estimated predictor value of the dependent variable regression (Y) with the independent variable (X) as a predictor. At this stage, it is expected that the resulting value is significant, (2) estimating the estimated predictor value from the

mediator variable regression (Z) with the independent variable (X) as the predictor. At this stage, it is expected that the resulting value is also significant, (3) regressing the dependent variable (Y) with the independent variable (X) and the mediator variable (Z) as a predictor. At this stage, the predicted Z for Y is expected to be significant, and the predicted X for Y is expected to have a significant value. If the three conditions above are met, the magnitude of the influence of the independent variable (X) on the dependent variable (Y) in the third equation must be smaller than the magnitude of the influence of both of them in the first equation to get complete mediation (complete mediation).

Based on the table above, it is known that the results of the regression analysis are fulfilled in the first and second conditions with the estimated predictor values of 0.623 and 0.646 and the results obtained are significant. Likewise in the third condition, the mediator variable is proven to influence the dependent variable with the control of the independent variable. This is indicated by the significant results in the x multiple regression model with respect to y with a significance level of 0,000 with an estimated predictor value of 0.436 and a Z to Y multiple regression with a significance level of 0,000 with an estimated predictor value of 0.289. The estimated value of the x predictor for y in the third equation of 0.623 proved to be greater than the first equation. Therefore, the research hypothesis which states that there is an influence of Psychological Capital on Work Engagement with perceived organizational support as a mediator in Generation Y is accepted and included in the type of perfect mediation.

DISCUSSION OF RESULTS

The research conducted this time aims to determine the effect of Psychological Capital on Work Engagement through the mediator role of Perceived Organizational Support in Generation Y. Based on the results of the regression analysis obtained in this study, it is known that Perceived Organizational Support can edit the effect of Psychological Capital on Work Engagement. This is evidenced by the four requirements in the mediation test Baron and Kenny (1986) are met.

The results of this study are in line with the review of "The Power of Positive Psychology: Psychological Capital and Work Engagement" written by Sweetman and Luthans (in Bakker & Leiter, 2010) which states that to respond to the challenges of work Engagement, PsyCap is seen as a positive condition that is psychologically if it is developed it will increase work Engagement. In addition, the results of this study also support previous studies related to psychological capital and work Engagement such as the results of research by De Waal and Pienaar (2013) as well as Simons and Buitendach (2013). Schaufeli and Bakker (2004) explained that work Engagement depicted by individuals who have positive experiences and emotions in their work will produce positive work results as well. Both of these relationships can occur because in the process of realizing work Engagement, it can be through a number of mechanisms related to PsyCap such as having confidence (self-efficacy) on the abilities of individuals, having hopes (hope in positive results, having the will and direction to achieve goals (optimism) and have the ability to rise again (resiliency) in the face of obstacles and job demands (Sweetman & Luthans in Bakker & Leiter, 2010) which are manifested through positive emotions.

The PsyCap dimensions that have been owned by Generation Y are theoretically believed to be able to actualize the potential of these individuals especially in the workplace (Luthans et al, 2007). These four sources have been proven to have discriminant validity (Luthans et al 2007). Sweetman and Luthans (in Bakker & Leiter, 2010) said that these dimensions build on each other into resources and capital in individuals that can cause work Engagement while expanding individual mindsets. The expansion of mindset caused by the increase in PsyCap can provide great energy and Engagement (Sweetman & Luthans, in Bakker & Leiter, 2010). In addition, this study also considers other variables as mediation, namely POS, where the perceived organizational support will present as a meaningful variable in the development of Millennials' work Engagement. Our findings are in accordance with Eisenberger et al. (1986) who indicated that perceived organizational support can

increase employees' emotional viscosity to the organization. In their research, Eisenberger et al. (1986) defined perceived organizational support as the employees' "beliefs concerning the extent to which the organization values their contribution and cares about their well-being". Employees with a fulfilled socio-emotional need prove to commit to an organization more easily compared to those with unfulfilled socio-emotional needs.

CONCLUSION AND RECOMMENDATIONS

Based on a series of analyzes conducted by researchers, it can be concluded that Perceived Organizational Support (POS) can mediate the influence of Psychological Capital (PsyCap) on Work Engagement in Millennials. Thus, the alternative hypothesis (Ha) in this study was accepted. In line with this, the results of research in Generation Y showed a positive correlation between POS with PsyCap and Work Engagement. In line with the results obtained, the authors propose a number of suggestions, (1) further research is expected to find out other variables that can be a mediator for the relationship of Perceived Organizational Support and Work Engagement in Generation Y such as protean career behavior and proactive career behavior. (2) career satisfaction will be better if it is measured from a multidimensional perspective. (3) Future studies are also expected to understand the perspective of positive psychological theory in advance in extracting information about the construct of work Engagement so as not to cause misleading. In addition, this study does not consider other factors that can affect work Engagement. The next researcher is expected to consider other factors underlying the work Engagement, namely the JDR model.

REFERENCES

1. Bakker, A. B., & Demerouti, E. (2008). Towards a model of work Engagement. *Career development international*, 13 (3), 209-223.
2. Bakker, A. B., & Leiter, M. P. (Eds.). (2010). *Work Engagement: A handbook of essential theory and research*. Oxford: Psychology Press.
3. Brown, S., dkk., (2009). Generation Y in the Workplace. *Journal of the Bush School of Government and Public Services*, 1-56.
4. Deloitte Consulting LLP. (2016). The 2016 Deloitte millennial survey, winning over the next generation of leaders. Diakses pada tanggal 20 Februari 2016 dari <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/gxmillennial-survey-2016-exec-summary.pdf>.
5. De Waal, J. J., & Pienaar, J. (2013). Towards understanding causality between work Engagement and psychological capital. *SA Journal of Industrial Psychology*, 39 (2), 1-10
6. Eddy, SW., Schweitzer, L., & Lyons, S. T. (2010). New generation, great expectations: A field study of the millennial generation. *Journal of Business and Psychology*, 25 (2), 281-292.
7. Eisenberger, R., Robin, H., Steven, H., & Debora, S. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71(3), 500-507.
8. Eisenberger, R., Armeli, S., Barbara, R., Patrick, D. L., & Linda, R. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology*, 86(1), 42-51. <https://doi.org/10.1037//0021-9010.86.1.42>.
9. Halbesleben, J. R., & Wheeler, A. R. (2008). The relative roles of Engagement and embeddedness in predicting job performance and intention to leave. *Work & Stress*, 22 (3), 242-256.
10. Joo, B. K., & Park, S. (2010). Career satisfaction, organizational commitment, and turnover intention: The effects of goal orientation, organizational learning culture and developmental feedback. *Leadership & Organization Development Journal*, 31 (6), 482-500.
11. Kamau, J. N., Njau, M. M., & Wanyagi, J. (2014). Factors influencing work attitude among 'Y' generation (A case of africa nazarene university). *European Scientific Journal*. 1, 1857-7431.

12. Luthans, F., Avey, J. B., Avolio, B. J., Norman, S. M., & Combs, G. M. (2006). Psychological capital development: toward a micro-intervention. *Journal of Organizational Behavior*, 27 (3), 387-393.
13. Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. *Personnel psychology*, 60 (3), 541-572.
14. Macey, W. H., Schneider, B., Barbera, K. M., & Young, S. A. (2011). *Employee Engagement: Tools for analysis, practice, and competitive advantage* (Vol. 31). John Wiley & Sons.
15. Meier, J., & Crocker, M. (2010). Generation Y in the workforce: Managerial challenges. *The Journal of Human Resource and Adult Learning*, 6 (1), 68.
16. Park, J., & Gursoy, D. (2012). Generation effects on work Engagement among US hotel employees. *International Journal of Hospitality Management*, 31 (4), 1195-1202.
17. Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job Engagement: Antecedents and effects on job performance. *Academy of management journal*, 53 (3), 617-635.
18. Schaufeli, W. B., & Bakker, A. B. (2004). *Utrecht work Engagement scale: Preliminary manual*. Occupational Health Psychology Unit, Utrecht University, Utrecht.

DOI 10.18551/rjoas.2019-08.25

STRATEGY FOR PERFORMANCE IMPROVEMENT AT BUILDING DIVISION OF PT. HUTAMA KARYA (PERSERO) IN CONDITIONS OF CONSTRUCTION BUILDING BUSINESS COMPETITION

Utomo Prajapati*, Baga Lukman M., Djohar Setiadi

School of Business, IPB University, Indonesia

*E-mail: utomopraja@gmail.com

ABSTRACT

PT. Hutama Karya (Persero) Building Division is a one of companies engaged in the construction of high rise buildings. The purpose of this research is to evaluate company performance and develop strategies to improve company performance. Interview and literature study use to evaluate company performance. Internal Faktor Evaluation (IFE) Matrix and External Faktor Evaluation (EFE) Matrix use to analyze internal and external environment. SWOT Matrix used to get alternative strategies and Quantitative Strategic Planning Matrix (QSPM) used for priority strategies. The IE Matrix show that the company is in Quadran IV. The strategy in that position is market penetration, market development. The results of QSPM analysis of the right strategy are strategies to utilize the big name of BUMN to be aggressive in marketing (initiating or creating projects). The strategy resulted in 5 of the strategy's activities.

KEY WORDS

Performance improvement, QSPM, SWOT matrix, strategy, business.

In this era of advancement, the society prefers to more practical and handy materials, especially regarding houses. There have currently been many buildings that not just function as offices, but also as apartments with facilities such as shopping malls.

According to a research by BCI Asia Indonesia, the construction market in Indonesia was estimated to reach Rp 451,33 trillions in 2018, a 2,71% increase than the one in 2017, around Rp 439,44 trillions, with the civil projects were up to 64% and building construction projects up to 36%. The value of building constructions was only estimated to increase 1,05%, or from Rp 157,11 trillions to Rp 155,86 trillions, in 2017. Such value was mostly allocated for presidential projects around Jakarta in 2018.

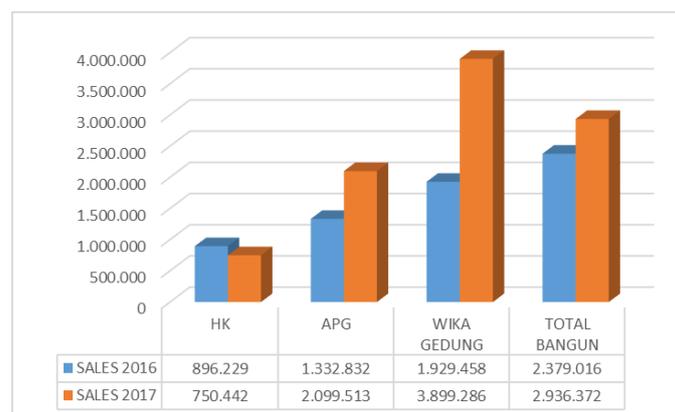


Figure 1 – Sales of construction companies

PT. Hutama Karya (Persero) Building Division is a Division of PT. Hutama Karya, a state-owned enterprise specializing in the constructions of High Rise Buildings, in which one of the products is contractors for skyscrapers. It was formed in 2010, where there were new companies focusing on the constructions of High Rise Buildings. PT. Hutama Karya

(Persero) Building Division has done many projects for constructing many office buildings, apartments, and hospitals, both in and outside of Jakarta.

Amidst the growing construction business, a 2017 phenomenon showed that while there were sale increases in other grade-7 construction companies, PT. Hutama Karya (Persero) Building Division experienced an income decrease or lower than 2016. Such decrease could be shown in Figure 1. Aside from incomes, the company's profit also strongly decreased, as shown in Figure 2.

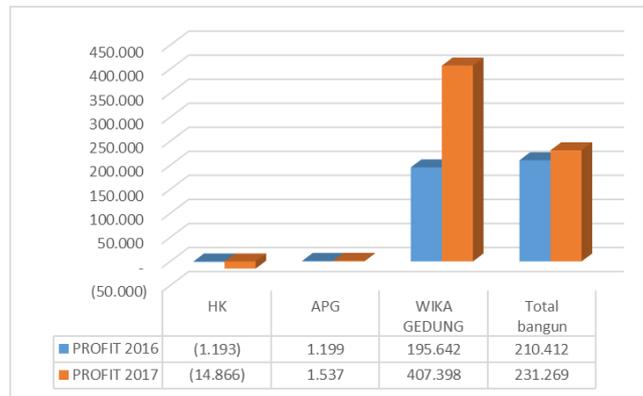


Figure 2 – Profits of construction companies

In comparison, other contractor companies with the same grade as PT. Hutama Karya (Persero) Building Division had significant increases. Therefore, the company is required to improve its performance in order to compete properly in the building construction business.

Based on the introduction, the sales and profits of PT. Hutama Karya (Persero) Building Division in 2017 decreased compared to 2016 and 2015, while sale and profit increases happened in other companies. In addition, the company failed to reach the standard targets set by the Division Budget and Work Plan (RKAD) of 2015-2017.

In this study, the writer analyzed this phenomenon and determined every possible strategy that PT. Hutama Karya (Persero) Building Division could apply to improve the company's performances. Upon analyzing, the writer implemented the research questions as follows:

- What was the current condition of PT. Hutama Karya (Persero) Building Division?
- What are the main factors of improving the company's performances?
- Which alternative business strategies that could be implemented to improve the company's performances?
- Which improvement strategies that the company should implement in order to compete with other construction companies?

Based on the research problems, the purposes of this research were as follows:

- Analyzing the current condition of PT. Hutama Karya (Persero) Building Division;
- Identifying internal and external factors that could influence the improvement of the company's performances;
- Formulating alternative business strategies and prioritizing on which strategies that would be implemented to improve the company's performances;
- Suggesting the management on which strategies that should be implemented in order to improve the company's performances and compete with other construction companies.

The results of this research were expected to provide benefits to the writer, the company (PT. Hutama Karya (Persero) Building Division), and the readers:

- For the writer, it would provide a practical experience on planning a strategy to improve the company's performances in the building construction industry;
- For PT. Hutama Karya (Persero) Building Division, it would provide a suggestion on a strategy planning that could be implemented to improve the company's performances;

- For the readers, it would become a source of information and a literature review for the following researches on performance improvement strategies.

METHODS OF RESEARCH

The research conducted in the office of PT. Hutama Karya (Persero) Building Division, Jalan Iskandarsyah I no. 6 Kebayoran Baru, South Jakarta, as it was intended from the start. The research was conducted during a one-month period, or during October until November of 2018.

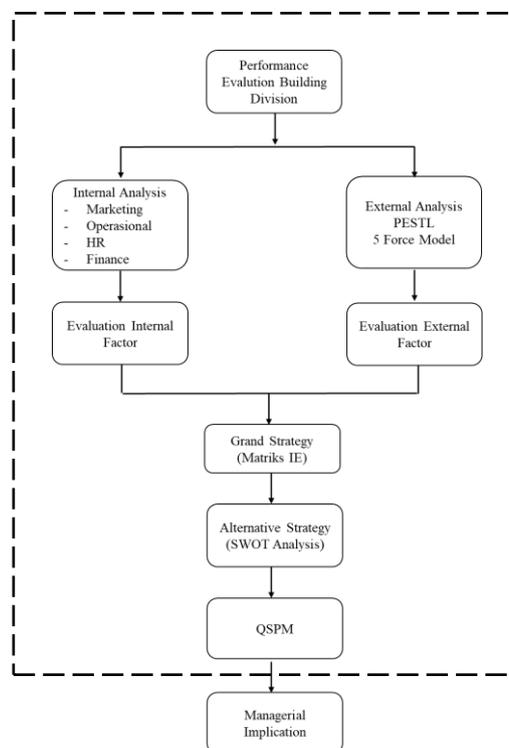
The research used the descriptive quantitative analysis, which described the research problem thoroughly in a form of a numeric data. The required datas were a primary data through interviews with experts and a secondary data obtained through journals, books, web pages, company documents.

The research used a thorough interview method wit experts to learn about the current condition of the company.

The sampling technique was conducted through the purposive sampling and judgment sampling techniques, which were intended to obtain respondents whose capacities and competence were aligned with the purpose of the research. The respondent sample could shown in Table 1.

Table 1 – Research Respondent Sample

Respondent	Name	Position
Internal	Purnomo	Head of Division
	Rohmat Danang NR	Senior Manager of Production (SMP)
	Suherni	Senior Manager of Administration & Finance (SMAK)
	Buzmart Zuriantomy	Senior Manager of Construction Business / Marketing Development (SMPBK)
External	Agus Ediyanto	Director of Yaika Gema Utama
	Muhammad Anwar	Director of Graha Kartika Anugerah



Note: ----- Scope of Research

Figure 3 – Mind Map of the Research

RESULTS AND DISCUSSION

The performance evaluation was analyzed through three aspects of the company: marketing, production / operational and finance.

On marketing, the winning auctions had only reached 28,22% in 2015 and increased up to 96,74% in 2016 from the appointed RKAD target. Yet in 2017, marketing experienced a decrease, with only 26,32% from the RKAD target. The target achievement for marketing compared with the realization could be seen in Table 3 below.

Table 3 – Performance Evaluation of Marketing*

YEAR	AUCTION FOLLOWED			AUCTION WON		
	RKAD (PLAN)	REAL	ACHIEVEMENT	RKAD (PLAN)	REAL	ACHIEVEMENT
2015	10.000	8.186	81,86%	1.892	534	28,22%
2016	7.880	9.675	122,78%	2.360	2.283	96,74%
2017	9.241	9.058	98,02%	3.545	933	26,32%

*the amounts were in billions of Rupiah.

In general, the marketing performance failed to reach the intended RKAD target. On the production / operational target, the sales in 2015 only reached 66,26% from the RKAD target and the inefficiency of HPP reached 1,78% of the RKAD target. The net profit still experienced a loss at Rp 42,7 billions. In 2016, there was an increase from the previous year, both in sales and profits, around 72,25% from the RKAD and HPP targets, while the inefficiency rate of 2016 was 0,49%. The net profit loss in 2016 was Rp. 92,46 billions. In 2017, the production / operational performance had a decrease in both the sales target and rate compared with the previous two years, with only 42,43% from the RKAD target, the inefficiency of HPP about 1,14% and a loss in net profit around Rp 71,93 billions. The target achievement for production / operational compared with the realization could be seen in Table 4 below:

Table 4 – Performance Evaluation of Production / Operational

PRODUCTION	2015					2016					2017				
	RKAD (PLAN)	%	REAL	%	ACHIEVEMENT	RKAD (PLAN)	%	REAL	%	ACHIEVEMENT	RKAD (PLAN)	%	REAL	%	ACHIEVEMENT
SALES															
NON JO (JOINT OPERATION)	1.313,8		870,6		66,26%	1.240,47		896,23		72,25%	1.768,86		750,44		42,43%
- Old Contract	881,3		666,7			593,47		502,73			923,11		542,06		
- New Contract	432,5		203,9			647,00		393,50			845,75		208,38		
JO (JOINT OPERATION)	72,0		146,3			333,00		161,40			296,50		289,59		
- Old Contract	72,0		146,3			180,00		161,40			79,00		123,80		
- New Contract	-		-			183,00		-			217,50		165,79		
COST															
NON JO (JOINT OPERATION)	1.234,6	93,97%	833,6	95,75%	-1,78%	1.115,24	89,90%	810,13	90,39%	-0,49%	1.583,60	89,53%	680,44	90,67%	-1,14%
- Old Contract	847,9		656,4			539,41		457,56			833,06		498,26		
- New Contract	386,7		177,2			575,83		352,57			750,55		182,18		
JO (JOINT OPERATION)	63,4		141,3			236,55		157,96			285,97		325,65		
- Old Contract	63,4		141,3			144,75		157,96			92,00		173,94		
- New Contract	-		-			91,80		-			193,97		151,70		
PROFIT BEFORE JO	79,2	6,03%	37,0	4,25%		125,23	10,10%	86,10	9,61%		185,25	10,47%	70,00	9,33%	
JO PROFIT	6,5		12,0			18,06		-			3,86		(8,04)		
PROFIT AFTER JO	85,7		49,0			143,29		86,10			189,11		61,96		
COST OF BUSINESS	115,5		140,0			14,12		31,66			49,11		36,90		
PROFIT	74,1		35,0			129,17		54,44			140,00		25,06		
OTHER SALES	-		3,5			0,00		11,93			0,25		0,04		
OTHER COST	24,0	1,83%	17,8	2,05%		40,06	3,23%	81,80	9,13%		77,94	4,41%	30,61	4,08%	
PROFIT BEFORE INTEREST & TAX	50,1		20,6			89,11		(15,43)			62,31		(5,51)		
COST OF INTEREST	22,1	1,68%	42,5	4,88%		45,00	3,63%	56,20	6,27%		33,39	1,89%	39,93	5,32%	
PROFIT BEFORE TAX	28,0		(21,9)			44,11		(71,63)			28,92		(45,45)		
TAX	40,1		20,9			37,86		20,83			51,74		26,50		
PROFIT AFTER TAX	(12,2)	-0,92%	(42,7)	-4,91%	(30,58)	6,25	0,50%	(92,46)	-10,32%	(98,71)	(22,81)	-1,29%	(71,93)	-9,59%	(49,12)

Source: Financial Report of PT. Hutama Karya (Persero) Building Division, Processed.

On finance, the company did not reach the intended target cash. In 2015, it only achieved 54,04% of the RKAD target, only 70,30% in 2016, then decreased in 2017 up to 52,64%. The target achievement for finance compared with the realization could be seen in Table 5 below:

Table 5 – Performance Evaluation of Finance

VARIABLE	2015			2016			2017		
	RKAD (PLAN)	REAL	ACHIEVEMENT	RKAD (PLAN)	REAL	ACHIEVEMENT	RKAD (PLAN)	REAL	ACHIEVEMENT
Cash In	1.338.019	723.053	54,04%	1.262.111	887.244	70,30%	1.725.174	908.148	52,64%
Cash Out	1.214.268	824.400		1.224.738	842.757		1.593.559	811.240	
Surplus/(Defisit)	123.751	(101.347)		37.373	44.487		131.615	96.908	

Source: Financial Report of PT. Hutama Karya (Persero) Building Division, Processed.

The records for the company's equity rates and short-term rates could be seen in Table 6 below:

Table 6 – Company's Financial Variables, 2015-2017

No	Variabel	Year		
		2015	2016	2017
1	Current Liability	886.426.505.934	992.656.762.368	745.769.969.765
2	Equity	(16.724.237.809)	(140.266.961.501)	(71.931.079.856)

Source: Financial Report of PT. Hutama Karya (Persero) Building Division, Processed.

The equity rates were still negative as the company experienced losses in 2015 and 2016. The analysis of the external environment resulted in five opportunities and five threats that the company currently faced. Both factors were evaluated using the EFE matrix to monitor the company's response towards them. The EFE Matrix of PT. Hutama Karya (Persero) Building Division could be seen in Table 7.

Table 7 – The EFE Matrix of PT. Hutama Karya (Persero) Building Division

NO	OPPORTUNITIES	WEIGHT	RATE	SCORE
1	Good relations with customers	0,15	3,00	0,45
2	Presidential Regulation planning on the holdings of state-owned construction companies	0,11	4,00	0,45
3	The biggest Portfolio owners by state-owned enterprises and Government	0,09	3,00	0,28
4	Design and Build package for tender	0,08	2,00	0,16
5	Government regulation on the constructions of 0% down payment houses and penthouses	0,06	2,00	0,13
NO	THREATS	WEIGHT	RATE	SCORE
1	Increase of dollar exchange rate against rupiah	0,11	3,00	0,34
2	Bad debts due to the owner's inability to pay debts	0,11	3,00	0,33
3	Requirements of using the BIM (Building Information Modeling) application on tender	0,08	3,00	0,23
4	The competition between Grade-7 contractor companies	0,12	3,00	0,35
5	Fines on delayed projects	0,08	3,00	0,25
TOTAL		1	-	2,97

The analysis of the company's external environment showed that good relations with customers and plans on the holdings of the infrastructure of state-owned companies were the opportunities that the company could prioritize. Whereas for threats, the company should remain alerted with the competition between Grade-7 contractor companies and bad debts due to the owner's inability to pay. The total evaluation rate of the EFE matrix was 2,97. It showed that the company could respond to both opportunities and threats very well.

The analysis of the internal environment resulted in five strengths and five weaknesses that the company currently had. Both factors were evaluated using the IFE matrix to measure the internal condition of the company, both in strengths and weaknesses. The IFE Matrix of PT. Hutama Karya (Persero) Building Division could be seen in Table 8.

Table 8 – The IFE Matrix of PT. Hutama Karya (Persero) Building Division

NO	STRENGTHS	WEIGHT	RATE	SCORE
1	The Board of Management's commitment on the company's growth	0,13	4	0,54
2	The formation of a task force	0,09	3	0,26
3	The big name of state-owned companies and the company's reputation	0,14	4	0,55
4	The use of the Project Control Information System	0,11	4	0,44
5	The use of the monitoring system for vendor bills	0,10	4	0,38
NO	WEAKNESSES	WEIGHT	RATE	SCORE
1	Marketing personnels failed to initiate projects	0,17	2	0,34
2	The length of time for the disbursement of bills to vendors	0,07	2	0,14
3	Unrecorded past project budgets and bad debts	0,08	2	0,17
4	The dropping of funds from the main office	0,06	2	0,11
5	Limited personnels for Cost Control	0,06	2	0,11
TOTAL		1,00	-	3,04

The analysis of the internal environment showed that the most important strengths that the company obtained were the big name of state-owned companies and the company's

reputation and the Board of Management's commitment on the company's growth. On the other hand, marketing personnels who failed to initiate projects, as well as unrecorded past project budgets and bad debts, became their greatest weaknesses. The total evaluation rate of the IFE matrix of 3,04 showed a strong condition on the company's internal environment.

With the EFE and IFE rates were in 2,97 and 3,04 respectively, the company was at row IV, which, according to David (2011), put the company in a growing and building position. It implicated which strategies that the company could implement, which were market penetration, market expansion, and product expansion.

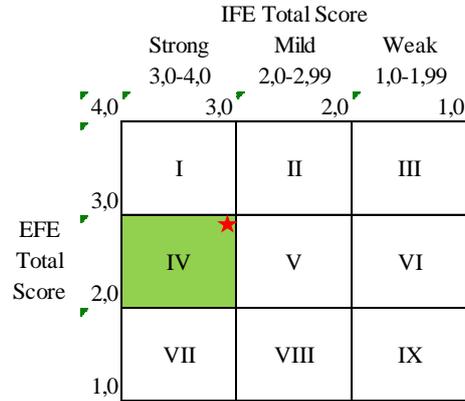


Figure 4 – The IE Matrix

The analysis of SWOT was to identify several factors that determined alternative strategies systematically, with the help of the SWOT matrix. The result could be seen in Figure 5.

Faktor Eksternal Faktor Internal	Strenght (S) 1. The Board of Management's commitment on the company's growth 2. The formation of a task force 3. The big name of state-owned companies and the company's reputation 4. The use of the Project Control Information System 5. The use of the monitoring system for vendor bills	Weak (W) 1. Marketing personnels failed to initiate projects 2. The length of times for disbursement of bills to vendors 3. Unrecorded past project costs and bad debts 4. The dropping of funds from head office 5. Limited personnels for cost control	
	Opportunity (O) 1. Relations with customers 2. Presidential regulation planning on the holdings of state-owned construction companies 3. The biggest portofolio owners by state enterprise and government 4. Design and Build packages in the tender offer 5. Government policies related to the construction of DP 0% houses and flat apartments	Strategy (SO) 1. Using the state-owned enterprises for aggressive marketings (project initiation/creation) (S1,S3,O1,O3,O4) 2. Offering tender prices with 89% HPP (S1,S3,O3,O4,O5)	Strategy (WO) 1. Providing lobbying and negotiation trainings to project teams (W1,W2,O1,O3) 2. Conducting a joint operation with project planner/other contractors (W3,W4,O3,O4,O5)
	Threat (T) 1. Increase of dollar exchange rate against rupiah 2. Bad debt due to the owner's inability to pay debts 3. Requirements of using the BIM (Building Information Modeling) application on tender 4. The competition between grade-7 contractor companies 5. Fines on delayed projects	Strategy (ST) 1. Implementing a framework contract with suppliers and specialized subcontractors (S4,S5,T1) 2. Fastening the vendor billing process with the maximum of one month disbursement (S1,S2,S5,T4,T5)	Strategy (WT) 1. Avoiding any unrecorded project budgets (W3,T1)

Figure 5 – The SWOT Matrix of PT. Hutama Karya (Persero) Building Division

The last step of the strategy analysis was determining which strategies that the company should prioritize and implement, through the analysis of QSPM. The prioritized strategies should be considered based on the company's limited resources, such as the human resource and the cost. Strategies on the SWOT matrix were weighted and rated once again to produce higher scores and determine the strategies to be implemented. The analysis result of QSPM could be seen in Table 9.

The analysis result of QSPM showed that the highest TAS (Total Attractive Strategy) rate was using the state-owned enterprises for agresive marketings (project initiation /

creation). This strategy was important for the company to improve its market growth, which could increase the sales rate and gain positive profits.

Table 9 – The Analysis of QSPM Matrix of PT. Hutama Karya (Persero) Building Division

ALTERNATIVE STRATEGY	TAS (TOTAL ATTRACTIVE)	STRATEGI RATING
Using the state-owned enterprises for aggressive marketings (project initiation/creation)	6,30	I
Offering tender prices with 89% HPP	4,35	V
Menerapkan kontrak payung dengan suplier dan subkontraktor spesialis	4,42	VII
Implementing a framework contract with suppliers and specialized subcontractors	4,38	IV
Providing lobbying and negotiation trainings to project teams	4,86	II
Conducting a joint operation with project planner/other contractors	5,76	III
Avoiding any unrecorded project budgets (W3,T1)	4,22	VI

From the resulted strategy, a suggestion of implementation was required.

Table 10 – Five-year strategic activities

No	Activity plan	Person in charge	Year				
			2019	2020	2021	2022	2023
1	<p><i>Using the state-owned enterprises for aggressive marketings (project initiation / creation)</i></p> <p>Assigning project leaders as marketing agents; Forming a marketing team that was comprised of: Marketing team for government projects Marketing team for state projects Marketing team for private projects Each team would be assigned to search information that were tendered by the owner.</p>	<p>Head of Division, Senior Manager of Construction Business / Marketing Development, Head of Production</p> <p>Head of Division, Senior Manager of Construction Business / Marketing Development, Head of Production</p>					
2	<p><i>Providing lobbying and negotiation trainings to project teams</i></p> <p>Representing services to new or private owners by suggesting a project plan to be included in the owner's Work and Production Budget Plan (RKAP). Conducting a routine visit to the existing owners.</p>	<p>Head of Division, Senior Manager of Construction Business / Marketing Development, Head of Production</p> <p>Head of Division, Senior Manager of Construction Business / Marketing Development, Head of Production</p>					
3	<p><i>Conducting a joint operation with project planner / other contractors</i></p> <p>Cooperating with consultants to initiate tendered design and build projects in order to obtain a higher supply margin.</p>	<p>Head of Division, Senior Manager of Construction Business / Marketing Development, Head of Production</p>					

CONCLUSION AND SUGGESTIONS

The current condition of PT. Hutama Karya (Persero) Building Division was still in the recovery state after unrecorded past debts because of undisciplined administration.

The company's internal and external factors were in quadrant IV (growing and building) with both IFE and EFE rates at 3,05 and 2,97, respectively. Internally, the big name of state-owned companies and the company's reputation are its strength, while marketing personnels who failed to initiate projects became their greatest weakness. On the external factors, the

highest opportunity was good relations with customers, in contrast with the competition between Grade-7 contractor companies on tender prices as its biggest threat.

Out of seven alternative strategies resulted from the SWOT matrix; the prioritized strategi that company should implement was using the state-owned enterprises for aggressive marketings (project initiation / creation).

There were five strategy activities from the company's prioritized strategy that could be implemented by the management.

After the implementation from the company's prioritized strategy, the company conducts a follow-up research on the effect of such implementation to its performance improvements.

REFERENCES

1. Aris P. 2012. The Analysis of Strategies and Competitiveness of PT. Wijaya Karya Tbk. in the International Market.[Thesis]. Yogya ; UGM
2. Andiana M. 2018. Formulating Strategies in Middle-Rank Contractor Companies upon Facing Competitions in the Construction Service Industry. [Thesis]. Bandung; Universitas Katolik Parahyangan.
3. [BPS] Statitics Indonesia. 2017. A Statistic Summary of Constructions in 2011-2016.[internet].
4. Elok LP.2018. The Analysis of the Expansion Strategy in Expanding Business in Global Market (Case Study of PT. Semen Indonesia (Persero) Tbk. in the Acquisition of Thang Long Cement Company in Vietnam). Journal of Business Administration, Vol. 58, No. 1.
5. Florencia FS. 2016. The Analysis of the Competitive Strategy of PT. Surya Cipta Mandiri. Journal of Business Administration. Agora. 4(2):250-258
6. Gunawan H. 2016. Evaluating the Competitive Strategy of PT. Pandu Alam Semesta in the Construction Service Industry. [Thesis]. Yogya; UGM
7. Halim A.G.S., R.H. Mustamu. 2013. The Analysis of the Descriptive Competitive Strategy of Contractor Companies Providing Constrution Needs. Agora. 1(1):1-15
8. Handayani Fajar S. 2009. The Strategic Management of Low-Class Consultants Towards the Free Investment Era. Journal of Civil Media Engineering. 9(2): 100-106
9. Handayani Fajar S., 2008, A Research of Strength, Weakness, Opportunity, Threats, Towards Low-Class Consultants of the Construction Service Industry in the Free Investment Era. A Research Report of Competitive Researches of DIPA PNBPN LPPM UNS TA 2008, Surakarta
10. Hindarwati E.N., S.B. Arifin. 2015. The Implementation of Business Strategy Towards Contractor Companies of Pillars in Indonesia. Journal of Indonesian Management. 15(3): 243-252.
11. Jefri Tumelap. 2014. The Performance Analysis of the Construction Service Companies (Study Case of the Sarmi Region). Scientific Journal of Media Engineering Vol 4, No.2
12. John AP, Richard BR. 2016. Strategic Management (translated). Jakarta: Salemba empat
13. Muhammad Ichsan. 2015. The Study Case of Construction Service Companies in the Field of the Public Services of Makasar. [Thesis]. Makasar; UNHAS
14. Porter M. 2007. Competitive Strategy. Tangerang: Kharisma Publishing Group
15. Porter M.E. 1992. Competitive Strategies – An Analysis Technique for Industries and Competitors (ID): Erlangga Publishing Company.
16. Rangkuti F. 2014. The Analysis of the SWOT Technique on Analyzing a Business Case. Jakarta (ID): PT. Gramedia Pustaka Utama.
17. Sudarto. 2011. Improving the Performance of Meningkatkan Kinerja the Construction Service Companies in Indonesia. CSIS, Jakarta
18. Sutjipto R., Nugroho P., Natan L. 1985. The Analysis of Internal and External Factors in Constructions, Kartika Yudha.
19. Yuliana Candra. 2017. The Marketing Strategy Model of the Consulting Contractor Service in South Kalimantan. Journal of Civil Engineering, Vol 11, No. 2. Faculty of Engineering. Unlam.

DOI 10.18551/rjoas.2019-08.26

THE INFLUENCE OF GOVERNMENT ROLE, COMMUNITY PARTICIPATION AND SOCIAL CAPITAL ON THE QUALITY OF DESTINATION AND COMMUNITY WELFARE IN THE TOURISM VILLAGE OF BADUNG REGENCY PROVINCE OF BALI

Agustina Made Dian Putri*, Budhi Made Kembar Sri, Utama Made Suyana, Yasa I G.W. Murjana

Faculty of Economics and Business, University of Udayana, Bali, Indonesia

*E-mail: dianagustina03@yahoo.com

ABSTRACT

The purpose of this study is to analyze: (1) the influence of the government's role on community participation; (2) the influence of the role of government, community participation and social capital on destination quality; (3) the influence of the role of government, community participation, social capital and destination quality on community welfare; (4) the role of community participation in mediating the influence of the government's role on the quality of destinations; (5) the role of community participation in mediating the influence of the government's role on community welfare; (6) the role of destination quality in mediating the influence of the role of government, community participation and social capital on community welfare; and (7) the role of community participation and destination quality in mediating the influence of the government's role on community welfare. The results of the research and data analysis show that: (1) the role of the government directly has a positive and significant effect on community participation; (2) the role of government, community participation and social capital directly have a positive and significant effect on the quality of destinations; (3) the role of government, community participation, social capital and destination quality directly have a positive and significant impact on community welfare; (4) community participation is a mediating variable that is capable of partially mediating the influence of the government's role on the quality of destinations; (5) community participation is a mediating variable that is capable of partially mediating the influence of the government's role on community welfare; (6) destination quality is a mediating variable that is able to play a part in mediating partially the influence of the role of government, community participation and social capital on community welfare; and (7) community participation and destination quality is a mediating variable that is able to play a part in mediating partially the influence of the government's role on community welfare.

KEY WORDS

Government roles, community participation, social capital, destination quality, community welfare.

Development so far has focused more on the development of the secondary sector aimed at improving the community's economy; in fact it has not fully provided welfare for the community equally, especially rural communities. This is because community empowerment in planning, implementing and enjoying the results of development in various sectors is still relatively lacking. This phenomenon is reinforced by the statement of Pranoto et al. (2006), which states that development policies for the region so far have not made significant changes to the improvement of the welfare of the community, and have even caused gaps between urban and rural areas.

The tourism sector is considered as a means to achieve sustainable development by providing very significant benefits in the economic, environmental and socio-cultural fields as well as the broadest opportunities for local people to improve their welfare (Sharpley, 2002). Efforts to find the link between tourism and sustainable development were stated by Sharpley (2009) which states that sustainable tourism development is a development that is focused on two things, on the one hand sustainability as an economic activity, and the other is a policy oriented towards long-term goals and between generations. The development of

the region into a tourism destination naturally causes changes in all aspects of people's lives, one of which is the change in livelihoods. These changes generally occur because of the desire of the people in tourism destinations to change their economic conditions, whether they are individuals, families, business groups or community groups (Prasiasa, 2010).

Province of Bali as one of the well-known tourist destinations both domestically and abroad in developing its tourism sector does not deviate from the national tourism development mission. The Provincial Government of Bali is working on making the people in the villages benefit from tourism through the rural tourism development program in the district by utilizing cultural, natural capital and attractions that are of interest. The problem that occurs in the tourism village of Badung Regency is that the potential utilization is not yet optimal through the lack of tourism products and attractions to tourists. This is inseparable from institutional management and community participation that not all tourist villages have good patterns. The quality of tourism destinations must be continuously improved as a result of tourists who are increasingly smart and demanding to be able to get more (more demanding) and can get value for money and is also caused by increasingly competitive competition of local, regional and international destinations. Local community participation in tourism development can be seen from two perspectives, namely participation in the decision making process (decision making process) and participation related to the benefits received by the community (perceived benefit) from the existence of tourism development in the region (Timothy, 1999). The success of tourism development can be seen from the participation of local communities in decision making at various stages, namely the problem identification stage, planning, implementation, monitoring and evaluation (Zhao & Ritchie, 2007). One of the social capitals needed to support the success and sustainability of a natural tourism development is the existence of a social network that occurs between visible stakeholders (Lyon in Rachmawati, et al, 2011). The things that can influence the formation of social networks are the good relations between the stakeholders involved (Weiler and Laing in Rachmawati, et al, 2011).

Improving the quality of destinations in the tourism village of Badung Regency is inseparable from the role of the government, community participation and social capital in the community. The role of the government as regulator, motivator, facilitator and dynamist is needed in the development of tourism in a region. The government can develop policies, facilitate, motivate and collaborate with stakeholders to improve the quality of the destination.

THEORETICAL BACKGROUND

Taroepratjeka (1998), said that tourism activities are activities that bring people together with a situation outside their environment and can cause awe, feel comfort and can even cause challenges to themselves. The situation in question can manifest as a state of nature, culture and special conditions, both as an object and attraction.

Sustainable development (Salim, 1990) aims to improve the welfare of society, to meet human needs and aspirations. Sustainable development is basically intended to seek equitable distribution of development between generations in the present and the future.

Pezzey (1992), sees aspects of sustainability from different sides. He sees that sustainability has a static and dynamic meaning. Sustainability from the static side is defined as the utilization of renewable natural resources at a constant technological pace, while sustainability from the dynamic side is defined as the utilization of non-renewable natural resources at a constantly changing level of technology.

Because of this multidimensional and multi-interpretation, experts agree to temporarily adopt the understanding agreed upon by the Brundtland commission which states that "Sustainable development is development that meets the needs of the current generation without reducing the ability of future generations to meet their needs." There are two things that implicitly concern in the Brundtland concept. First, it concerns the importance of paying attention to natural resource and environmental constraints on development and consumption patterns. Second, concerns attention to the well-being of future generations. Hall (1998) states that the assumption of sustainability lies at least in three basic axioms; 1)

Current and future treatments that place positive values in the long run; 2) Recognizing that environmental assets contribute to economic wellbeing; 3) Knowing the constraints due to implications that arise on environmental assets.

Dengnoy in Nugroho and Aliyah (2013) stated that the development of community-based tourism was developed based on the principle of balance and harmony between the interests of various stakeholders in tourism development including the government, private sector and the community. Community-based tourism development aims to: 1) empower the community; 2) increasing the role and participation of the community in tourism development in order to obtain economic, socio-cultural benefits from tourism development; 3) provide equal opportunities to all members of the community. Therefore community-based tourism development requires coordination and cooperation as well as a balanced role between various stakeholders including the government, the private sector and the community.

Community-based tourism must pay attention to the involvement of local communities which is an absolute requirement for achieving sustainable tourism development. The management must be carried out by local people whose lives and lives are affected by the development (Pitana, 2002), so that it will lead to a community-based management system as the main actor in tourism.

The approach that can be used to develop community-based tourism is a participatory approach. This approach is used to encourage the formation of partnerships between the relevant parties (stakeholders). In this case the local community must be made aware of the potential they have so that they have a sense of belonging (sense of belonging) to a variety of natural and cultural resources as assets of tourism development. Furthermore, if tourism stakeholders are associated with community-based tourism (Natori, 2001), then tourists are the capital that will be processed by the three components of stakeholders (government, tourism entrepreneurs, and the community) whose results will be enjoyed by tourists.

A tourism destination is an area specifically designated and promoted as a tourist destination, in which all tourism products are coordinated by one particular organization (European Communities, 2003). According to Richardson and Fluker (2004), tourism destinations are defined as "A significant place visited on a trip, with some form of actual or perceived boundary. The basic geographic unit for the production of tourism statistics".

Mill & Morrison (2012) use another term about this destination, namely Destination Mix, which is a group of elements that have a dependency on one another to create a tourist experience for tourists. Destination mix consists of: 1). Attraction, 2). Facilities, 3). Infrastructure, 4). Transportation, and 5). Hospitality Meanwhile, Morrison (2013) states in more detail that the destination mix consists of accommodation, restaurants, tourist attractions, events, transportation, infrastructure and hospitality. The opinion of Mill & Morrison (2012) and Morrison (2013) can be concluded that the products that must be provided by the destination for visitors consist of tourist attractions (including events), accommodation, transportation, infrastructure and hospitality.

Markandya et al. (2003) stated that one of the main roles of the government in the field of tourism is to make policies and legislative frameworks. Meanwhile Cameron, A. M, et al (2001) stated that local government (regency / city) has two main functions related to tourism namely: 'empowerment' of tourism development, and management of tourism impacts.

Local governments through the rules they have made have a great influence on the success of the local tourism industry, and play a role in preserving the assets in the destination. With these rules, tourism destinations will be maintained and remain attractive to most visitors, which is characterized by three main factors, namely: a positive image of the destination and travel experience, safety and comfort, and overall environmental quality (Clark, B. 2006).

Local community participation in tourism development in general can be seen from at least two dimensions, namely community participation in the decision making process and in receiving benefits. At the level of decision making, people are encouraged to have control over tourism resources, have initiative and be able to make decisions that can influence and improve their quality of life (Timothy, 1999; Tosun, 1999; Zhao & Ritchie, 2007).

The participation of local people at the level of benefit acceptance can be reflected in the increase in income, employment, and education of local people about tourism and entrepreneurship, as well as increased public awareness of tourism. Increased public awareness will create a friendlier environment for tourists and be able to improve the image of the destination, which in turn will increase the capacity of the community to receive benefits from tourism activities (Timothy, 1999).

Coleman (1998) defines that social capital is an aspect of social structure that makes it easy for the actions of individuals or actors in a social structure. Cohen and Prusak (2001), define that social capital is a stock of the active relationships of a society. Each pattern of relationship is bound by trust, mutual understanding, and shared values, which bind group members to make possible joint actions carried out efficiently and effectively.

To support this statement, Hasbullah (2006) again recommends that social capital as everything related to cooperative behavior with the community to achieve a better quality of life, which in its implementation is supported by the values and norms that become its main element, as; mutual trust (trust), reciprocity and collective rules in a society.

Friedlander (1980) said that welfare is an organized system that is carried out through social services and institutions with the aim of helping individuals and groups achieve a satisfying level of life and health and personal and social relationships that provide opportunities for them to develop all of their abilities and to improve their welfare in accordance with the needs of the family and community.

According to Lokshin and Ravallion (2000), welfare can be seen from two approaches namely objective well-being and subjective well-being. Subjective well-being can describe various aspects of life, including employment, economic activity, level of independence, life span, and leisure. Milligan, et al (2006) explain that objective well-being is the level of welfare of individuals or groups of people measured on average by certain benchmarks, both economic, social and other measures. Meanwhile, Suandi (2006) states that the welfare of an individual is seen personally as measured in the form of satisfaction and happiness.

METHODS OF RESEARCH

This study uses a quantitative data approach with a Likert scale measurement which is then processed using the least square partial data processing technique (PLS). The thought process framework, research conceptual framework, research model and hypothesis are built with guidelines on the theories and results of previous studies that are relevant to this study. The research framework and research hypotheses are as follows.

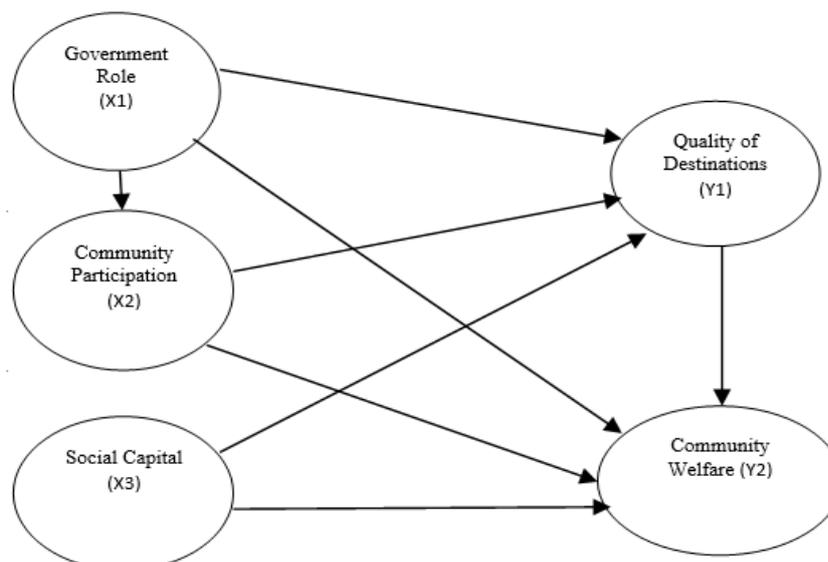


Figure 1 – Research Framework

Based on Figure 1, the hypothesis formulation can be elaborated as follows:

- 1) The role of government has a positive and significant effect on community participation in the Tourism Village of Badung Regency, Bali Province;
- 2) The role of government has a positive and significant effect on the quality of destinations in the Tourism Village of Badung Regency, Bali Province;
- 3) Community participation has a positive and significant effect on the quality of destinations in the Tourism Village of Badung Regency, Bali Province;
- 4) Social capital has a positive and significant effect on the quality of destinations in the Tourism Village of Badung Regency, Bali Province;
- 5) The role of government has a positive and significant effect on the welfare of the community in the Tourism Village of Badung Regency, Bali Province;
- 6) Community participation has a positive and significant effect on community welfare in the Tourism Village of Badung Regency, Bali Province;
- 7) Social capital has a positive and significant effect on community welfare in the Tourism Village of Badung Regency, Bali Province;
- 8) Destination quality has a positive and significant impact on community welfare in the Tourism Village of Badung Regency, Bali Province;
- 9) Community participation significantly mediates the effect of the government's role on destination quality in the Tourism Village of Badung Regency, Bali Province;
- 10) Community participation significantly mediates the effect of the government's role on community welfare in the Tourism Village of Badung Regency, Bali Province;
- 11) Destination quality mediates significantly the influence of the government's role on community welfare in the Tourism Village of Badung Regency, Bali Province;
- 12) Destination quality mediates significantly the effect of community participation on community welfare in the Tourism Village of Badung Regency, Bali Province;
- 13) Destination quality mediates the positive and significant influence of social capital on community welfare in the Tourism Village of Badung Regency, Bali Province;
- 14) Community participation and destination quality mediate the positive and significant influence of the government's role on community welfare in the Tourism Village of Badung Regency, Bali Province.

This research takes place in the Tourism Village of Badung Regency which consists of 11 tourism villages located in Central Badung and North Badung Regencies which are then selected purposively in three tourist villages namely Sangeh Tourism Village, Pangsari Tourism Village and Belok Sidan Tourism Village on the basis of consideration of the facts the development of tourism villages in Badung Regency has not shown maximum results (Suryasih, et al, 2014; Nalayani, 2015; Anom, et al, 2015).

This research uses two types of data, primary data and secondary data. The data source of this research is quantitative data that is data on the number of tourist visits, data on the number of accommodation companies / businesses, and other data owned by Badung Regency and Badung Regency tourism village. The qualitative data used is data in the form of community responses to the quality of the destination, the role of the government, participation and social capital owned by the community in the tourism village of Badung Regency and data in the form of a picture of a tourism village in Badung Regency.

The population in this study are the people who are directly involved with tourism activities, namely the people who have direct links both economically and socially culturally with tourism activities. This population category includes, among others, people who open businesses related to tourism (restaurants, lodging, stalls around attractions, etc.), artists, handicraft makers, members of tourism association groups such as Pokdarwis, STA (Sangeh Tourism Activity) which amounted to 285 people then by using the Slovin formula obtained a sample size of 166.

Data collection methods in this study are the method of observation and interview methods. Non-behavioral observation method to collect secondary data from related agencies such as tourist visit data, number of companies / accommodation businesses in Badung Regency, tourism villages in Badung Regency. In-depth interviews (in-depth interview), which are used to obtain primary data from community leaders as informants in

the relevant and competent research areas provide information in accordance with the objectives of this study including the customary village apparatus and tourism object managers in Sangeh Tourism Village, Pangsang Tourism Village and Belok Sidan Tourism Village.

The role of government is defined as direct and indirect government involvement in development activities in an area that can influence the success of the development. Government role variables are reflected by indicators of the government's role as motivators, facilitators and dynamists (Pitana and Gayatri, 2005).

Community participation in this study is defined as community participation individually, in groups or in community unity in a process of developing tourist villages. The community participation variable is reflected by indicators, namely involvement in the planning stage, involvement in the development implementation stage, involvement in the management stage, and involvement in the monitoring and evaluation phase (Priasukmana and Mulyadin, 2001).

Social Capital in this research is interpreted as a source that arises from the interaction between people in a community. The social capital variable is reflected by indicators of trust, networks and norms (Fukuyama, 1995 and Putnam, 1993).

Destination Quality is the quality of an area that is specifically designated and promoted as a place of visit for tourists and in which all tourism products are coordinated by a particular organization. Destination quality in this study was measured by four reflective indicators, namely attraction, amenities, accessibility and institutional (ancillary service) (Cooper, et al., 1993).

Community welfare is the welfare of the people involved in tourism activities in the tourism village of Badung Regency, which can be seen from the indicators namely income, fulfillment of basic needs, fulfillment of educational needs and health conditions (BPS, 1991).

In this study data analysis using Partial Least Square (PLS) approach. In PLS, not all the weights of each indicator are assumed to be the same for latent variables, but these indicators have various weights, so indicators with lower weights will also contribute lower to the score of latent variables (Chin et al., 1996).

The results of the PLS data processing are then carried out in two stages of evaluation, namely the evaluation of the outer model and the inner model. The first step is evaluating the measurement model or outer model which is carried out in accordance with the relationship between the indicator and its construct. Evaluation of measurements is carried out by: 1) Convergent Validity with a tolerance value of at least 0.50; 2) Reliability and Validity constructs with internal consistency and crinbach alpha values must be greater than 0.70 and the maximum AVE value is 0.50; and 3) Discriminant Validity. The second stage is done by looking at the validity of the inner model which is done with three types of evaluations, namely 1) evaluation of goodness of fit; 2) test for direct influence and 3) test for indirect effect or mediation.

RESULTS AND DISCUSSION

Based on the test of validity and reliability that has been done, states every question and variable has been valid and reliable.

The result of PLS output regarding convergent validity is known that all indicators that form the construct in this study are statistically significant with a t value greater than 1.96 with a p.value of ≤ 0.05 . Likewise, all loading values are above 0.50, discriminant validity has also been fulfilled.

Based on Table 1 it can be seen that the constructs of Government Role (X1), Community Participation (X2), Social Capital (X3), Destination Quality (Y1), and Community Welfare (Y2) are very good, because they have discriminant validity that is far greater than 0, 5 which is reflected in the Average Variance Extracted Value (AVE), and above 0.70 for Composite Reliability and Cronbach Alpha which exceeds 0.60.

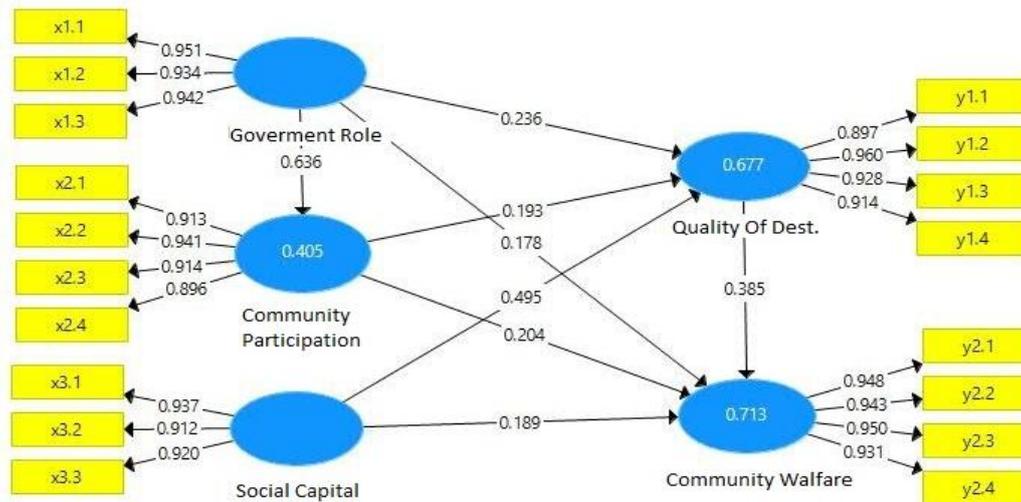


Figure 2 – Results of the Influence of Government Role, Community Participation and Social Capital on the Quality of Destinations and Community Welfare

Table 1 – Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach Alpha on each research variable

Variable	Average Variance Extracted (AVE)	Composite Reliability	Cronbach's Alpha
Role of Government (X1)	0,888	0,970	0,937
Community Participation (X2)	0,839	0,960	0,936
Social Capital (X3)	0,852	0,945	0,913
Destination Quality (Y1)	0,856	0,954	0,944
Welfare (Y2)	0,890	0,960	0,959

Source: Processed from Raw Data, 2019.

Table 2 – R-square

Variable	R Square	Explanation
Community Participation	0,405	Moderate
Destination Quality	0,677	Strong
Welfare	0,713	Strong

Source: Processed from Raw Data, 2019.

The results of the analysis of the R2 values obtained from the calculation results show a wide distribution. In Table 3, it can be seen that two of the sub-measurement variables have good determinant coefficient values, namely destination quality and community welfare variables. Only the community participation variable has good criteria.

$$Q^2 = 1 - [(1 - R_1^2) (1 - R_2^2) \dots (1 - R_p^2)] \tag{1}$$

$$Q^2 = 1 - [(1 - R_1^2) (1 - R_2^2) (1 - R_3^2)]$$

$$Q^2 = 1 - [(1 - 0,405) (1 - 0,677) (1 - 0,713)]$$

$$Q^2 = 1 - [(0,595) (0,323) (0,287)]$$

$$Q^2 = 1 - 0,055 = 0,945$$

Based on the calculation results obtained a Q2 value of 0.945 can be interpreted that 94.50 percent of the variation of the community welfare variable (Y2) is expressed by variations in the government role variable (X1), community participation (X2), Social Capital (X3), and Destination Quality (Y1), while the remaining 9.30 percent of the variation in value changes in the community welfare variable cannot be explained by exogenous latent variables (X1, X2, X3, and Y1), and is determined by other factors not included in this research model.

Table 3 shows that the role of government has a positive and significant effect on community participation as evidenced by the P Value where the value is less than 0.05 so

that it is declared significant. The role of government, community participation and social capital has a positive and significant impact on the quality of destinations. Furthermore, the roles of government variables, community participation and social capital have a positive and significant effect on people's welfare.

Table 3 – Path Coefficients (Direct Effects)

Variable	Original Sample	Standard Deviation	T Statistics	P Values	
Govt. Role → Community Participation	0,636	0,058	10,955	0,000	Significant
Govt. Role → Destination Quality	0,236	0,098	2,394	0,041	Significant
Govt. Role → Welfare	0,178	0,079	2,247	0,000	Significant
Community Participation → Destination Quality	0,193	0,084	2,284	0,017	Significant
Community Participation → Welfare	0,204	0,085	2,400	0,023	Significant
Social Capital → Destination Quality	0,495	0,112	4,414	0,025	Significant
Social Capital → Welfare	0,189	0,092	2,050	0,017	Significant
Destination quality → Welfare	0,385	0,083	4,636	0,000	Significant

Source: Processed Raw Data, 2019.

Table 5 – Indirect Effects

Variable	Mediating Variables	Original Sample	Standard Deviation	T Statistics	P Values	
Govt. Role → Destination Quality	Community Participation	0,123	0,054	2,260	0,024	Sig.
Govt. Role → Welfare	Community Participation	0,130	0,056	2,310	0,021	Sig.
Govt. Role → Welfare	Destination Quality	0,091	0,041	2,223	0,027	Sig.
Govt. Role → Welfare	Participation and Destination Quality	0,047	0,024	1,991	0,047	Sig.
Community Participation → Welfare	Destination Quality	0,074	0,037	1,985	0,048	Sig.
Social Capital → Welfare	Destination Quality	0,190	0,062	3,063	0,002	Sig.

Source: Processed from Raw Data, 2019

Based on Table 5 it is known that all mediation relationships in this test are positive and significant (P values <0.05). By looking at the direct effects of the research variables in Table 4 and the indirect effects in Table 5, it can be stated that the direct influence of the role of government on the quality of the destination has a significant effect and after passing through other variables or mediated by community participation the effect is significant. This shows that the role of community participation mediation is "partial" mediation. The direct influence of the role of government on community welfare is significant and after going through other variables or mediated by community participation it has a significant effect. Similarly, through two mediating variables namely community participation and destination quality also have a significant effect. This shows the role of community participation mediation is "partial" mediation and also the role of community participation mediation and destination quality is "partial" mediation. The direct influence of the role of government, community participation and social capital on community welfare has a significant effect, and after passing through other variables or being mediated by destination quality variables it becomes significant, this shows the mediating role of the "partial" destination mediation variable quality.

DISCUSSION OF RESULTS

Testing the hypothesis in this study proves that the role of government has a positive and significant influence on community participation. The results of this study reflect that the role of government influences community participation in the Tourism Village of Badung Regency, Bali Province. This is in line with the study of community-based tourism theory and empirical studies of the relationship between the role of government and community participation.

The role of the Badung Regency Government in encouraging community participation in tourism villages is carried out by motivating the community about the importance of

managing tourism villages. The role of the Badung Regency Government in the participation of the community in the tourism village, must answer the needs of the community and tourists, as expected by the community. As the implication of community-based tourism development, the role of the government in increasing community participation has clearly been demonstrated by the growing social, economic, cultural and political dimensions in society. The social dimension appears in the form of community involvement to jointly maintain tourism activities in tourist villages, by realizing *Sapta Pesona*. The economic dimension is in the form of development, various groups of craftsmen, souvenirs, culinary, lodging, stalls, etc., which are able to meet the needs of tourists. The cultural dimension in society is the development of a number of art studios such as dance and percussion which are used to support tourism. The political dimension, in the form of the involvement of all rural tourism communities, in decision making or design, implementation of activities and supervision in the field of tourism.

In providing this facility, the government cooperates with various parties, both private and public. Even under certain conditions the government can act as a dynamic (Pitana and Gayatri, 2005), namely as a party that serves to provide encouragement to the community by creating a conducive development environment.

The results of research and data analysis show that the role of government has a positive and significant effect on the quality of destinations. This means that if the role of the government is improved, the quality of the destinations in the tourist villages will also increase. This fact is an empirical justification regarding the perception of local people who assume that the government has been able to play its role as a motivator, facilitator, and dynamic in the development activities of tourism destinations in Badung Regency. This finding is in line with research conducted by Budiasa, et al., (2014) where the role of government has a positive and significant effect on CBT-based tourism destinations in Buleleng Regency. Steps or programs carried out by the Badung Regency government for the arrangement of tourism village facilities and infrastructure, namely by providing tourism support facilities, conducting monitoring and coaching to the community by empowering, and in collaboration with the community, private sector and related parties in order to develop tourist village.

Even though the role of the government as a motivator, facilitator or dynamic is quite good, the assistance process carried out by village officials has not been maximized. The assistance process must involve local people who understand the problems faced in the tourism village both from the initial stages of planning to evaluation. The results of the search for opinions from informants through in-depth interviews about the role of the government in improving the quality of destinations in the Tourism Village of Badung Regency, as previously revealed, provides justification for the significance of the effect of the government's role on improving the quality of the destination. Government involvement in tourism development activities is a necessity (Markandya, et al., 2003). The role of the government can affect the satisfaction of local people about the existence of tourism in their region, which is a representation of the quality of tourist destinations in an area.

The results of research and data analysis show that community participation directly has a positive and significant effect on the quality of destinations in the Tourism Village of Badung Regency, Bali Province. This means that by increasing public participation the quality of the destination in the tourist village will also increase. The results of this study are justifications of the opinion of Tosun (2002) which says that community participation is one of the vital elements in the formulation of tourism development strategies and actions in a region. Tourism in the tourism village of Badung Regency takes place in the midst of community life that has a different socioeconomic and cultural background than tourists. The rejection and acceptance of the local community on these conditions will be greatly influenced by various motives that are significantly on the level of participation in the development activities.

Community participation in the tourism village of Badung Regency, although considered good by respondents, community participation is still passive. The lack of community involvement in the tourism village of Badung Regency is closely related to work

opportunities and their ability to manage tourism villages in Badung Regency. The tourism village communities in Badung Regency mostly earn a fortune in big cities like Denpasar, Kuta and Nusa Dua. They work in the city in search of a better life. But if they can get involved in it without realizing they have already participated in introducing and promoting their village. Not much capital is needed to work in one's own area, it requires mental and physical readiness of the community to welcome tourists. During this time the people in the tourism village of Badung Regency just follow the launching of the program, and are waiting to be mobilized. When there will be an event or work program from the provincial and central government, then the Pokdarwis will be directed by the Badung Regency government for its preparation and implementation.

Although there seems to be participation, however, the participation that occurs is pseudo participation. It was said that the participation was pseudo because the community (respondents) participated in the management stage only in the form of utilizing business opportunities, job opportunities, and opportunities to get education and training as well as involvement in maintaining the security and comfort of the tourist village. Whereas community participation recorded high, is at the stage of development management, which according to Arnstein, Sanof, and Pateman, this stage cannot yet be classified as participation.

The results of Leksakundilok's research (2004) found that community experience related to tourism activities in the region will have an influence on the motives for participation. Community initiatives to participate can originate from internal and external factors of local communities. Community experience is one form of determinants of local community participation. Tourism activities that are not accompanied by the control of local communities have the potential to cause a negative impact on culture to look for forms of participation that are broader than just simply obtaining economic benefits. The results of this study are in line with research conducted by Sebele (2010) in Botswana, Africa which states that through involving local people in tourism development activities, the local community will be more empowered and the benefits felt in economic, socio-cultural and environmental conservation aspects will increase which causes hope to realize sustainable tourism even greater.

Claiborne (2010) conducted a study of the effect of participation on tourism development in Bocas del Toro, Panama found that indigenous people of the region, although aware that development has a meaning of progress and greater opportunities for progress for all members of the community stated that tourism development in the region It should be done with full consideration of the opinions of local people, given that uncontrolled tourism development rather than profit can actually harm their social, cultural and environmental arrangements.

The results of research and data analysis show that social capital that has indicators of trust, networks and norms has a positive and significant effect on the quality of destinations in the Tourism Village of Badung Regency. This means that by increasing social capital in the community, the quality of the destination in the tourist village will increase. The dominant social capital is reflected by norm indicators, their presence can be expressed as a driver of destination quality improvement in the Tourism Village of Badung Regency, while the trust indicator has the lowest value of the respondents' perceptions. Community norm is a community perspective which is accepted as a documented form, an unwritten rule or certain behavior which is accepted as a norm in a particular community. This norm will determine the potential for togetherness in forming a strong foundation of social capital so that it can be a supporting parameter for the development of community-based and sustainable tourism.

Social capital owned by the people of Badung Regency such as community harmony in developing tourist villages can be seen from the enthusiasm of the community in participating in the activities held. Mutual cooperation, cleaning the village, helping each other and reminding each other in establishing communication will strengthen the social networks that exist in a tourist village because all levels of society can participate.

In an agrarian community in North Badung the dynamics of norm changes tend to be stagnant and do not easily accept norm changes. On the one hand, the norms of social

organizations can be unique, so that they are attractive and provide added value to sell as a tourist destination. The sense of togetherness and the spirit of community cooperation is a foundation that will support sustainable community-based tourism. The results of this study found that the norm as one of the components of social capital as a force in the development of community-based tourism destinations (Hamzah and Khalifah, 2009).

The results showed that the role of government had a positive and significant effect on people's welfare. This means that the role of government in its role as a motivator, facilitator and dynamist is able to improve the welfare of the community in the Tourism Village of Badung Regency. The Badung Regency Government has supported the implementation and financing of all development activities, both public facilities and Village Kahyangan and their ceremonies such as piodalan and other ceremonies, so that the people here are helped.

There are various studies on the role of government in the development process in an area (Morgan, 2009). The role of the government to stimulate regional development is more emphasized to the aspects of regulation, investment in infrastructure, marketing and tax incentives that are directed to foster investment climate in the region.

The results of the analysis of research data indicate that community participation has a positive and significant effect on people's welfare. It means that the people of Badung Regency are participating in the development of the tourism village starting from the beginning of the planning, implementation and monitoring, it will improve the realization of better public welfare. Local community participation is an important component of sustainable development in general to meet the needs of present and future generations even though protecting natural resources. The term community participation here is the ability of communities to influence the results of development projects such as tourism development that has an impact on them (Purnamasari, 2011). In the application of a tourism village it is necessary to involve the local community because it is related to the quality and socio-economic conditions of the local community. Therefore, in order to create sustainable natural resources, the development of tourism villages requires the participation of local communities.

Community participation in the Regency of Badung can be concluded as the willingness of respondents who as a whole participated or participated in the implementation of the development of the tourism area. Communities in the Tourism Village of Badung Regency say that the sustainability of tourism can create jobs and increase income for families. Besides accessing health is easier, more focused on children's education and can have savings for tomorrow. Increasing participation of local communities, in turn, will significantly increase all dimensions of sustainable development. The economic, cultural, and social dimensions of local communities have a positive impact on community participation in tourism development (Untong, Kaosa-ard, Ramos, Sangkakorn, & Rey-Maquieria, 2010; Sebele, 2010; Claiborne, 2010).

The results of the research and data analysis show that social capital which has indicators of trust, networks and norms has a positive and significant effect on the welfare of the community in the Tourism Village of Badung Regency. The results of this research are in line with the study of researchers Noya & Clarence (2009), and Kimmo (2010), stating the formation of social capital is a process related to the support of traditions, community norms and the spirit of togetherness traditions that run in line with the dynamics of the community towards the realization of prosperity that is managed together.

The Balinese who are members of an adat village (pakraman) have a social capital in the form of a welfare system (Meniarta, et al., 2009). The forms of social capital for the Indigenous Village community in Bali consist of values, institutions, and mechanisms. The value adopted by the people in Bali is that all citizens are brothers (in unison). In addition, happiness and sadness are felt together (ups and downs). This value makes the impetus for villagers to participate in the order, work together, give each other (ngejot) and social gathering, which is carried out to redistribute welfare to all indigenous villagers (manners) in a fair manner. Likewise with social capital in the tourist village of Badung Regency.

Social capital enables community groups to achieve something (Coleman, 1988; Putnam, 1995). Putnam (1995) also states that social capital encourages people in a

community to want to engage in collective activities assuming that other members of their community will also do the same. Social capital encourages coordination and cooperation (Putnam, 1995; Pretty & Ward, 2001). The existence of social capital causes community members will not do things that are detrimental, because other people will not do that (Pretty & Ward, 2001).

The results showed that the quality of the destination affects the welfare of the community. The existence of a tourism village in Badung regency with unique potential, then the increase in the quality of the destination will lead to increased welfare of the community. Most respondents have felt an increase in welfare received from the existence of a tourist village. The results of this study are in line with the same results obtained by Leksakundilok, (2004) and Aref (2011) who say that tourism provides benefits in increasing local people's income and employment opportunities. The dominant benefit felt is increased employment opportunities and business opportunities for the community.

Opportunities that can be utilized by the local community in the Tourism Village of Badung Regency are as object manager, accommodation manager, souvenir trader, restaurant manager, photographer, parking guard, janitor, percussion artist, dance artist and so on. Tourism activities in an area cause the economic activity of local people to grow. Although in terms of meeting the needs of clothing, food and housing as well as education has not been able to have a major impact on the community in the Tourism Village of Badung Regency.

The existence of a tourism village has a positive impact on society by increasing economic income. The quality of a positive and significant destination for the welfare of the dominant community is reflected by the attraction indicator. This means that the tourism village in Badung Regency has natural, cultural and artificial tourism potential which is very feasible for the development of tourism where this attraction can be a unique tourist attraction that can be sold to bring tourists to the welfare of the community. So that the quality of destinations in the tourist village can benefit the welfare of the community, it is necessary to have good partnership collaboration between the government, community and the private sector.

The results showed that community participation was able to mediate the influence of the government's role on destination quality. This means that increasing community participation in tourism villages will strengthen the influence of the government's role on destination quality. The role of the government by increasing community participation to improve the quality of destinations in the Tourism village of Badung Regency is reflected in three types of roles, namely motivators, facilitators and dynamists. The empowerment carried out by the Badung Regency government is one of the supporting factors in the development of a tourist village. The development of tourism villages is inseparable from the involvement and empowerment of local communities (Prasiasa, 2010).

The results of this study are in line with research conducted by Cameron, et al. (2001) on the West Coast, New Zealand proved that the role of local government was observed through three perspectives, namely: (a) regional economic development initiatives; (b) provision of tourism infrastructure; (c) managing tourism events is able to increase regional economic growth which is reflected through increased income of local residents and increased employment opportunities and business opportunities in the tourism sector. This has led to an increase in the understanding of the local population regarding the importance of tourism in the region which subsequently encouraged the participation of local communities in the development.

Communities in the Tourism Village of Badung Regency view the economic impact of tourism development is the most predictive. This finding is in line with the same results obtained (Leksakundilok, 2004; Aref, 2011) which noted that tourism provides benefits in increasing local people's income and employment opportunities.

The results showed that community participation was able to mediate the influence of the role of government on community welfare through means that increasing community participation in tourism villages would strengthen the influence of the role of government on people's welfare. Increasing participation of local communities, in turn, will significantly

increase all dimensions of sustainable development. The economic, cultural, and social dimensions of local communities have a positive impact on community participation in tourism development as noted by many researchers (Untong, Kaosa-ard, Ramos, Sangkakorn, & Rey-Maquieria, 2010; Sebele, 2010; Claiborne, 2010).

The role of the government in the process of regional development must be pursued in such a way that the interests of the local community are the priority of development goals. Accommodating the interests of local communities in development including tourism development will have an impact on increasing community participation. This was confirmed in research conducted by Mayer and Keyes (2005) who examined the role of city government in housing development in three cities in the United States namely Boston, Cleveland and Portland. Mayer and Keyes concluded that housing construction in the three cities was fully supported by the community in each city, paying attention to houses built in accordance with the social and cultural conditions of the community.

The results showed that the quality of the destination was able to mediate the influence of the role of government on people's welfare. The role of the government in the development of tourism villages in Badung Regency, especially in its role as motivators, facilitators and dynamists can encourage the community to play an active role in the development of tourist villages in Badung Regency. The Badung Regency Government has developed infrastructure to support the sustainability of tourism where access to tourist attractions has become easier. The community is also given training on tourism awareness through Pokdarwis in the local village so that they are able to compete with workers from outside the area. The government also supports tourism activities in the village. The government helps the development of rural tourism through village funds to accelerate village development. With the support of the government it is believed that it will continue so that people feel helped and have awareness about the responsibility to develop tourism potential in the village by preserving the environment and preserving culture as a selling power so that tourism development can be felt by the community which will have an impact on the well-being of the income side, basic needs, education and health.

The results of this study are in line with research conducted by Cameron, et al (2001) which proves that the role of local government is observed through three perspectives, namely (a) regional development initiatives; (b) provision of tourism infrastructure; and (c) managing tourism events able to increase regional economic growth which is reflected through increased income of local residents and increased employment and business opportunities in the tourism sector. This has led to an increase in the understanding of the local population regarding the importance of tourism in the region which subsequently encouraged the participation of local communities in the development.

The results showed that the quality of the destination is able to mediate the effect of community participation on the welfare of the community. It means that with a good destination quality in the tourism village will strengthen the influence of community participation on the welfare of the community. This is because: (1) community participation has a significant effect on the quality of the destination and (2) the quality of the destination has a significant effect on the welfare of the community. The results of this study are in line with the study of Marhanani (2014) where community participation will arise due to the direct benefits of the environment around tourism. In order to provide benefits, the environment must be maintained. This is a reciprocal relationship between tourism activities, management and benefits derived from the environment around tourism. If nature is preserved, then the people themselves will enjoy it. Likewise with tourism activities, if the preservation of the environment around the tourism area is well maintained, then the people who will benefit economically.

The active role of the community is needed to support the development of the tourism sector in the region. The study of tourist destinations is determined by the presence of community participation as an inseparable part of the development of tourist destinations (Tosun, 2006). The community is a determining component in the development of tourist areas (Aref et al, 2010). The role of the community can determine the success of tourism

development, where community involvement will lead to support for tourism by the community so that tourism will continue to develop (Ma'rifatul Kholifah, 2015).

As explained by Demartoto (2009) that the local community is the main actor in the development of tourism villages. Research on community participation in the development of tourism villages in Indonesia, shows that the community has a very broad opportunity to participate in every stage of development, where all the knowledge and local wisdom of local communities will be an important input in tourism planning and management; local communities will be able to increase the use of assets and resources for economic activities, cultural conservation and rural environments will be better maintained (Darma P. & Pitana, I G, 2010; Permanasari, 2011).

The results of research and data analysis show that destination quality is able to mediate the influence of social capital on people's welfare. By mobilizing the potential of social capital in the Badung tourism village as a basis for togetherness including community norms and culture, the potential of community networks in the Badung Regency Tourism Village, as well as arousing public trust to formulate their interests through kinship and togetherness patterns will improve the quality of the destination tourism in the tourist village so that with the increase in the quality of the destination it will have an impact on people's welfare. The results of this research are in line with the study of researchers Noya & Clarence (2009), and Kimmo (2010), stating the formation of social capital is a process related to the support of traditions, community norms and the spirit of togetherness traditions that run in line with the dynamics of the community towards the realization of prosperity that is managed together.

Cavaye (2008) and Kimmo (2010) report that there is positive support that increasing the source of welfare from the management of local population-based tourist destinations actually strengthens the traditions and culture of the community as a result of the interaction of the lifestyle of tourists with local residents as affected by the intensive interaction of tourists as users services with local residents as tour service providers. Successful tourism development in an area requires a balance between environmental, economic and socio-cultural aspects so that a sustainable tourism takes place (Goeldner, Ritchie, and McIntosh, 2000; Milic, Jovanovic, and Krstic, 2008). The Quebec Declaration lists people as one of the social components that have the role and responsibility to determine the success of natural tourism development through the development of social capital (Word Ecotourism Summit, 2002).

The results of research and data analysis show that community participation and destination quality are able to mediate the influence of the role of government on people's welfare. The results of the search for the opinions of informants about the role of government in community welfare mediated by community participation and the quality of destinations in the tourism village of Badung Regency, as previously revealed, provides justification that in realizing community welfare in the Tourism Village, synergy between the role of government and community participation in realizing tourism-based tourism is needed. community and sustainable. In managing tourism in the tourism village of Badung Regency, the implementation of tourism activities is carried out by the manager by involving the local community. The people in the tourism village are fully aware that the development of tourism should not change the tradition and environmental sustainability in the tourism village of Badung Regency.

The role of the government in improving the welfare of the community in the tourism village will not be in vain if the community is involved in it, in order to improve the quality of existing destinations. So that with the increasing quality of destinations in the tourist village, it will increase tourist satisfaction which will increase the number of tourist visits to the tourist village. This is consistent with the explanation of Yemen and Mohd (2004) that the key to regulating tourism development with a community based tourism (CBT) approach is that there is government support, CBT requires the support of a multi-institutional structure in order to be successful and sustainable. The CBT approach is human oriented which supports fair benefit sharing and supports poverty alleviation by encouraging the government

and the community to maintain natural and cultural resources, the government will function as a facilitator, coordinator or HR advisory body and institutional strengthening.

RESEARCH LIMITATIONS

The limitations that can be identified related to this research, namely in the management of tourism destinations, collaboration between the government, the public and the private sector is needed as a partnership model, but in this study only focuses on discussing the role of government and society and social capital in the development of tourism in the Tourism Village of Badung Regency. This study only focused on three research sites, namely Sangeh tourism village, Pangsas Tourism village and Belok Sidan tourism village. To get the perception of the community in the tourism village of Badung Regency as a whole it is better to involve all the tourism villages in Badung Regency.

CONCLUSION AND SUGGESTIONS

Based on the results of the research and discussion described previously, the conclusion of this study is the role of the government directly and positively and significantly influential on community participation in the Tourism Village of Badung Regency. That is, the role of government is a dominant stimulus in increasing community participation in the Tourism Village of the Badung Regency of Bali Province, where social capital is more dominant affect the quality of the destination. That is, social capital becomes the dominant stimulus in improving destination quality in the Tourism Village of Badung Regency, Bali Province. Government role, community participation, social capital and destination quality directly have a positive and significant impact on the welfare of the community in Badung Regency Tourism Village, where destination quality is more dominantly affecting public welfare. That is, the quality of the destination is a dominant stimulus in improving the welfare of the community in the Tourism Village of Badung Regency, Bali Province. Community participation is a mediating variable that is able to play a partial mediating effect of the role of the government on destination quality in the Tourism Village of Badung Regency, Bali Province.

Community participation is a mediating variable that is able to play a partial role in mediating the influence of the government's role on community welfare. Community participation and destination quality are mediating variables that can play a partial role in mediating the effect of the government's role on community welfare in the Tourism Village of Badung Regency, Bali Province.

Based on the conclusions of the research results, the suggestion that can be delivered is that the government needs to increase its role by making harmonious cooperation with the community, the private sector and tourism businesses to improve the quality of destinations in the tourism village of Badung Regency. The government needs to organize tourism in the tourism village by creating natural attractions based on the environment and culture of the community, providing supporting facilities that are not yet owned by the tourism village and empowering the community to increase their participation in the development of the tourism village. The community is advised to increasingly safeguard social capital, especially norms owned by the community in the form of togetherness, the spirit of mutual cooperation and their daily behavior in development. It is necessary to strengthen the tourism village network driven by the Tourism Awareness Group (Pokdarwis) in each tourism village by intensively establishing cooperation and promotion with the tourism industry (PHRI, ASITA), Higher Education and regional tourism villages that have been developed. There is a need for institutional strengthening between traditional villages and official villages and Pokdarwis in tourist villages in order to overcome obstacles in the village.

REFERENCES

1. Anom, I Putu, Ida Ayu Suryasih, Ida Bagus Suryawan, I Gst Ag. Oka Mahagangga, I Wayan Mertha. 2015. Laporan Final Kajian Pengembangan Desa Wisata Di Kabupaten Badung. Fakultas Pariwisata-Universitas Udayana.
2. Aref & Ma'rof. 2008. Barriers of Tourism industry Through Community Capacity Building. *International Review of Business Research Papers*. Vol. 5 No. 4 June 2009. Hal.399-408.
3. Aref, F. 2011. Sense of Community and Participation for Tourism Development. *Life Science Journal*, 8(1), pp.20-25.
4. 2011. The Effects of Tourism on Quality of Life: A Case Study of Shiraz, Iran. *Life Science Journal*, 8(2), pp.26-30.
5. Arif, S.S. 1999. Applying Philosophy of Tri Hita Karana in Design and Management of Subak Irrigation System. A Study of Subak as Indigenous Cultural, Social, and Technological System to Establish a Culturally based Integrated Water Resources Management. Vol. III. (ed: S.Susanto), Fa.of Agric. Technology. Gadjah Mada Univ. Yogyakarta.
6. Baiquni, M and Susilawardani. 2002. Pembangunan Yang Tidak Berkelanjutan Refleksi Kritis Pembangunan Indonesia. Transmedia Global Wacana, Yogyakarta.
7. Budhiana, Sujana, Eka N. Kencana, Trisna Darmayanti. 2016. Local Communities As Agents For Sustainable Tourism: A Structural Model to Study Tourism Development At Northern Bali Province Indonesia. *International Journal of Economics, Commerce and Management*, Vol. IV, Issue 10, October 2016
8. Cameron, A.M., Memon, A., Simmons, D.G., Fairweather, J.R., 2001. Evolving Role of Local Government in Promoting Sustainable Tourism Development on the West Coast. Lincoln, New Zealand: Tourism Recreation Research and Education Centre (TTREC) Lincoln University.
9. Cavaye, J. 2002. The Role of Government in Community Capacity Building. Research Report. Rockhampton: Principal Rural Development Office Department of Primary Industries.
10. Chavis, D.M., Lee, K.S., Acosta, J.D. 2008. The Sense of Community (SCI) Revised: The Reliability and Validity of the SCI-2. In *The 2nd International Community Psychology Conference*. Lisboa, Portugal, 2008.
11. Claiborne, Petra. 2010. Community Participation in Development and The Value of Social Capital: The Case of Bastimentos, Bocas del Toro, Panama, Not Published, School of business, economic and law, Gothernburg, University of Gothernburg.
12. Cohen, D & Prusak, L. 2001. In *Good Company: How Social Capital Makes Organization Work*. London: Harvard Business press.
13. Coleman, J.S. 1998. Social Capital in the Creation of Human Capital: *American Journal of Sociology*, 94, Supplement. S95-S120.
14. Cooper, C. F & Gilbert, D. W. 1993. *Tourism. Principle & Practice*. England. Addison Wesley Longman Group Limited.
15. Darma P., & Pitana, I G. 2010. *Pariwisata Pro-Rakyat: Meretas Jalan Mengentaskan Kemiskinan di Indonesia*. Jakarta: Kementrian Kebudayaan and Pariwisata.
16. European Communities.2003. *A Manual for Evaluating the Quality Performance of Tourist Destinations and Services*. Enterprise DG Publication, Luxembourg.
17. Kimmo, O. 2010. *Local Government Association Capacity Building-Rationale, Cooperation Practice, and Strategies for the Future*, Local and Regional Gov. Finland.
18. Leksakundilok, A. 2004. 1 86487 222 5 Ecotourism and Community-based Ecotourism in The Mekong Region. Working Paper # 10. Sidney: University of Sidney.
19. Hamzah, A., Khalifah, Z. 2009. *Handbook on Community Based Tourism: How to Develop and Sustain CBT*. In A Church & T. Coles (Eds.), *Tourism, power and space*. Abingdon: Routledge.
20. Hasbullah, Jousairi. 2006. *Social Capital (Menuju Keunggulan Budaya Manusia Indonesia)*, Jakarta: MR United Press.

21. Markandya, A., Taylor, T. & Pedroso, S. 2003. *Tourism and Sustainable Development: Lessons from Recent World Bank Experience*. Research Report. Washington, D.C.: The World Bank IBRD.
22. Meniarta, I Ketut., Mas'udi, Wawan., Dwipayana, A.A.G.N. Ari. 2009. *Dinamika Sistem Kesejahteraan and Modal Sosial di Masyarakat Banjar Pakraman-Bali*. *Jurnal Ilmu Sosial and Ilmu Politik* Volume: 13, Nomor 2, November 2009. pp. 231-248.
23. Mill, R.C., Morrison, A.M. 2012. *The Tourism System*. United States Of Amerika: Kendall Hunt Publishing Company.
24. Morgan, J. Q. 2009. *The Role of Local Government in Economic Development: Survey Findings from North Carolina*. Research. Chapel Hill: School of Government University of North Caroline.
25. Nalayani, N.M.H.A. 2014. *Evaluasi and Strategi Pengembangan Desa Wisata di Kabupaten Badung*. (tesis). Denpasar. Program Pascasarjana Universitas Udayana.
26. Natori, Masahiko. 2001. *A Guide Book for Tourism-Based Community Development*. Yokohama: Asia Pasific Tourism Exchange Center.
27. Permanasari, I K. 2011. *Pemberdayaan Masyarakat melalui Desa Wisata dalam Usaha Peningkatan Kesejahteraan*. Thesis, Magister Perencanaan and Kebijakan Publik. Pascasarjana, FE, Universitas Indonesia, Jakarta. Tidak diterbitkan.
28. Pitana, I G., 1999. *Pelangi Pariwisata Bali*. Kajian Aspek Sosial Budaya Kepariwisataan Bali di Penghujung Abad, BP, Denpasar.
29. 2002. "Daya Dukung Bali terhadap Kepariwisataan and Sosial Budaya". Dalam: I Gusti Ngurah Bagus, editor. *Pembangunan Bali Berwawasan Budaya*. Edisi Khusus. Denpasar: Majalah Ilmiah Pusat Penelitian Universitas Udayana. Tahun I No.1. hal 62-70
30. Pitana, I G., and Gayatri. 2005. *Sosiologi Pariwisata*. Yogyakarta: Penerbit Andi.
31. Prasiasa, D.P.O. 2010. "Pengembangan Pariwisata and Keterlibatan Masyarakat di Desa Wisata Jatiluwih Kabupaten Tabanan". (disertasi). Denpasar: Program Pascasarjana Universitas Udayana.
32. Pretty, Jules N.1995 .*Participatory Learning and Action; A Trainer's Guide*. 267pp, ISBN:189825002, HED.
33. Putnam, R.D., 1995. *Bowling Alone: America's Declining Social Capital*. *Journal of Democracy*, 6(1), pp.65-78.
34. Richardson, John I and Martin Fluker. 2004. *Understanding and Managing Tourism Australia*. NSW: Pearson Education.
35. Scheyvens, R. 2002. *Tourism for development: empowering communities*. Harlow: Prentice Hall.
36. Sebele, L. S. 2010. *Community-based tourism ventures, benefit and challenges: Khama Rhino Sanctuary Trust, Central District, Botswana*. *Tourism Management*, 31, p.136=146.
37. Sharpley, R. 2002. *Tourism and Development: Concepts and Issues*. Multilingual Matters Limited.
38. 2009. *Tourism Development and the Environment: Beyond Sustainability?* New York: Earthscan.
39. Timothy, D.J. 1999. *Participatory Planning: a View of tourism in Indonesia*. *Annals of Tourism Research*, 26, pp.371-91.
40. Tosun, C. 1999. *Towards a Typology of Community Participation in the Tourism Development Process*. *Anatolia: An International Journal of Tourism and Hospitality Research*, 10(2), pp.113-34.
41. 2002. *Host Perception of Impact: A Comparative Tourism Study*. *Annals of Tourism*, 29 (1), pp. 231-53
42. 2006. *Expected nature of community participation in tourism development*. *Tourism Management*, 27(3), pp.493-504.
43. Yaman, A.R. & Mohd, A., 2004. *Community-based Ecotourism: A New Proposition for Sustainable Development and Environmental Conservation in Malaysia*. *Journal of Applied Science*, 4(4), pp.583-89.
44. Zhao, W. & Ritchie, J.R.B., 2007. *Tourism and Poverty Alleviation: An Integrative Research Framework*. *Current Issues in Tourism*, 10, pp.119-43.

DOI 10.18551/rjoas.2019-08.27

**THE EFFECT OF INDIVIDUAL AND SITUATIONAL FACTORS
ON CAREER SATISFACTION AND AFFECTIVE COMMITMENT AMONG
GENERATION Y EMPLOYEES: A CASE STUDY OF TELECOMMUNICATION
COMPANY IN INDONESIA**

Noviandri Prima Dewi

Department of Industrial and Organizational Psychology, Faculty of Psychology,
University of Airlangga, Surabaya, Indonesia

*E-mail: primadewinoviandri@gmail.com

ABSTRACT

Since massive retirement occurs at this telecommunication company, it caused millennial employees to replace positions or positions previously occupied by generation X. This resulted in generation Y dominating the workforce and providing challenges for the company. On the other hand, the phenomenon that often occurs in millennials is a lack of commitment and not easily satisfied. Based from this phenomenon, this study examines the effect of individual factors (proactive personality & performance goal orientation) and situational factors (organizational learning culture & leader-member exchange) on career satisfaction and affective commitment among generation Y employees in telecommunication company. This study uses a quantitative approach and the data collection techniques used are by distributing questionnaires. The population of this study are 123 employees from generation Y employees. The technique of determining the sample in this study is purposive sampling and the data testing techniques were using PLS. The results of this study indicate that situational factors (organizational learning culture & leader-member exchange) have a significant positive influences on career satisfaction and affective commitment. Meanwhile, the individual factors (proactive personality and performance goal orientation) have only a significant positive influences on career satisfaction. But on affective commitment, only proactive personality has a significant positive influence. Whereas the performance goal orientation does not significantly influence on affective commitment. This study also prove that there is a positive and significant influence between career satisfaction and affective commitment among generation Y employees in telecommunication company.

KEY WORDS

Generation Y, proactive personality, performance goal orientation, organizational learning culture, leader-member exchange, career satisfaction, affective commitment.

As the largest telecommunications and network services company in Indonesia, the company has a vision to "Be the king of digital in the region" and the mission is "Lead Indonesian digital innovation and globalization". In an effort to achieve this vision and mission, it is important for the company to realize the importance of building great leaders & people. So that the obsession "to become a Global TOP 10 Telco in 2020" is achieved.

However, to achieve this, one of the branch offices is currently experiencing a phenomenon of massive retirement that has occurred since 2015 and its peak occurred in 2019-2021. This causes the company to experience employee regeneration on a large scale and resulted in generation Y dominating the workforce and providing challenges for the company.

The number of millennials that have dominated now needs to be adjusted so that this generation of employees can make maximum contributions. This generation needs proper handling because the character and way of working are not the same as the previous generation. Ng et al., (2012) state that millennials have lower career satisfaction levels compared to the previous three generations. This generation also shows a lower affective commitment and less willing to stay in the same organization compared to the previous generation (Ng et al., 2012).

Apart from the negative views of millennial generation, there are positive views that this generation has the ability with communication and technology, the ability to see problems and opportunities from a new perspective, and more comfortable working in teams (Myers and Sadaghiani, 2010; Howe and Strauss 2000; Gorman et al., 2004).

The advantage of this generation is that they have great potential that can contribute to the company, especially the way and the spirit of working. Therefore, the organization must strive to retain millennial employees in the company. These efforts can be done by increasing the career satisfaction and affective commitment of millennial employees.

According to Rhoades and Eisenberger (2001), affective commitment is a determinant of a person's loyalty employees of the organization. Employees who have affective commitment that can show a sense of belonging to the organization, increase involvement in the organization, a desire to achieve goals and a desire to maintain in the organization. Besides that, according to Joo and Park (2010), career satisfaction and affective commitment in the work environment can be influenced by various factors including personal and situational factors.

Factors that influence career satisfaction and affective commitment are based on career motivation theory by London (1983). This multidimensional model has three interrelated components: individual factors, situational factors, career decisions and behaviour. This model explains that personal factors are obtained based on individual behaviour such as proactive behaviour, and also obtained from individual goals such as goal orientation. Whereas situational factors are obtained based on the existence of various aspects related to the work environment. For examples leadership styles, learning cultures, compensation systems, company policies and rules, and changes in the work environment.

The first individual factor that became a predictor of career satisfaction and affective commitment in this study was proactive personality. Proactive personality is a belief in one's ability to overcome inhibition by situational forces and the ability to influence changes in the environment (Bateman and Crant, 1993). Park and Joo (2012) found that proactive personality has a significant relationship to career satisfaction.

The second individual factor which is a predictor of career satisfaction and affective commitment is performance goal orientation. Goal orientation is a goal that is pursued by each individual in a certain achievement (Park and Joo, 2010). There are two types of goal orientation, namely learning goal orientation and performance goal orientation (Park and Joo, 2010). Performance goal orientation has a significant influence on career satisfaction. A significant predictor of career satisfaction is goal orientation which includes social and material support to achieve employee goals (Barnett and Bradley, 2007). Several studies have shown that career satisfaction is always associated with goal orientation (Egan, 2005; Goodstalk and Sosik, 2003; Park and Joo, 2010; Joo and Ready, 2012; Park and Joo, 2013). When Park and Joo (2010) found that learning goal orientation with career satisfaction was not significant, then learning goal orientation was not mentioned in this study.

Performance goal orientation can positively influence career satisfaction (Park and Joo, 2010). Millennial employees who have high-performance goal orientation tend to produce good performance. So that, satisfaction is obtained when the employee gets positive appreciation from coworkers and their superiors. Robinson (2000) states performance goals orientation can affect affective commitment. High performance goal orientation employees show their best abilities and tend to want to be seen by organizations as employees who are highly committed to the company.

The first situational factor that predicts career satisfaction and affective commitment is the culture of organizational learning. Organizational learning culture refers to organizations that are skilled in creating, acquiring, transferring knowledge, and changing behaviour to reflect new knowledge and insights (Garvin, 1993). Based on previous research found that organizational learning culture can increase career satisfaction levels (Egan et al., 2004). Employees who get lessons from the organization they occupy will feel psychologically positive and satisfied with what is provided by the organization in achieving employee career satisfaction. Mathieu and Zajac (1990) stated that organizational learning culture can increase affective commitment. Organizational learning culture makes positive psychological

feelings that felt by employees, employees feel cared by the organization when given insight and new knowledge to progress themselves to strengthen the desire to always be in the company.

The second situational factor that predicts career satisfaction and affective commitment is Leader-member exchange. Leader-member exchange is the quality of interpersonal exchange relationships between employees and their supervisors (Graen and Uhl-Bien, 1995). Han (2010) states that leader member exchange affect employee career satisfaction. Employee who has a good relationship (trust-based) with his boss, will easily get resources and basic information support from their superiors in achieving career satisfaction. Joo (2010) states there is a positive relationship between leader member exchange and affective commitment. Employees who have higher relationship quality will get greater support from the leader. So that the supported employee appears happy and makes himself feel like he wants to commit more to the company and his boss.

The purpose of this study was to determine the effect of personal factors (performance goal orientation & proactive personality) and situational factors (organizational learning culture & leader-member exchange) on career satisfaction and affective commitment. It is hoped that in this research, practitioners of human resources in this company can play a role important in increasing career satisfaction and employee commitment by implementing practices such as cultural change and leadership development using coaching or mentoring.

LITERATURE REVIEW

Career Motivation Theory. London (1983) defines career motivation as an incentive that arises from within a person (individual) and from the organizational environment to improve his abilities to achieve a better career. From this career motivation theory, there are two factors of individual proactive personality and performance goal orientation. Career motivation theory also explains the situational factors, including organizational learning culture and leader-member exchange.

Dimensions of individual factors are the variable needs, interests, and personality that is potentially relevant to one's career. It is also revealed that career motivation models can be linked to individual personalities and influenced by situational (contextual) conditions (London, 1983).

Proactive personality. According to Bateman and Crant quoted by Joo (2012), proactive personality can be said to be a belief in one's ability to overcome obstacles by situational (contextual) strength and the ability to influence environmental change. Individuals with proactive personality have a sense of curiosity about what happens to their environment and have confidence in the situation he will face. Individual with proactive personality will always look for opportunities, show their initiative, take action carefully, and be persuaded to achieve it by bringing a change (Bateman and Crant, 1993).

Performance Goal Orientation. This is one of the goal categories that is found by Dweck (1986). Performance goal orientation focuses on the ability and effort of employees who want to be shown to other employees. Joo and Ready (2012) said that performance goal orientation refers to the desire to show one's competence to others and receive positive evaluations from others. In other words, employees want to show their ability to work to be recognized by their colleagues that they are competent.

Situational (contextual) conditions factors that can influence an individual's motivation in achieving his career are organizational learning culture and leader-member exchange. Both factors are obtained from the organization to motivate individuals in a career as desired. London (1983) revealed that career motivation models can be related to individual personalities and influenced by situational (contextual) conditions.

Organizational Learning Culture. This theory is termed as an organization that is skilled in creating, acquiring, and transferring knowledge, and modifying employee behaviour to reflect new knowledge and insights (Garvin in Joo, 2012). The explanation can be said that the organization can analyze and process certain information. This ability can reflect employees to deal with new cognitive situations to improve employee performance.

Leader Member Exchange. Leader member exchange is a reflection of the quality of personal relationships between superiors and subordinates (Uhl-Bien in Joo, 2012). A high leader-member exchange can create a warmer company atmosphere than a low leader-member exchange. Low-quality leader-member exchanges are defined as those that are limited to exchanges that occur according to the employment contract (Liden, 1997).

Career Satisfaction. Gattiker and Larwood (1988) define career satisfaction as an overall affective orientation of an individual towards his career and work role. Someone assesses career success through several indicators, including the development of new skills, a balance between life and work, challenges, and goals of employees (Gattiker and Larwood, 1988; Heslin, 2005).

Affective Commitment. Mercurio (2015) define that affective commitment can be represented as the core and the most powerful source in influencing individual behaviour and feelings, forming individual perceptions, and can mediate individual reactions to organizational transactions. Based on the findings of Allen and Meyer (1993), affective commitment has shown correlation strong with the desired results and the organization has encouraged this affective commitment to its employees.

Hypothesis:

- H1: Proactive personality has a positive influence on affective commitment;
- H2: Performance goal orientation has a positive influence on affective commitment;
- H3: Organizational learning culture has a positive influence on affective commitment;
- H4: Leader member exchange has a positive influence on affective commitment;
- H5: Proactive personality has a positive influence on career satisfaction;
- H6: Performance goal orientation has a positive influence on career satisfaction;
- H7: Organizational learning culture has a positive influence on career satisfaction;
- H8: Leader member exchange has a positive influence on career satisfaction;
- H9: Career satisfaction has a positive influence on affective commitment.

The research model is shown in Figure 1.

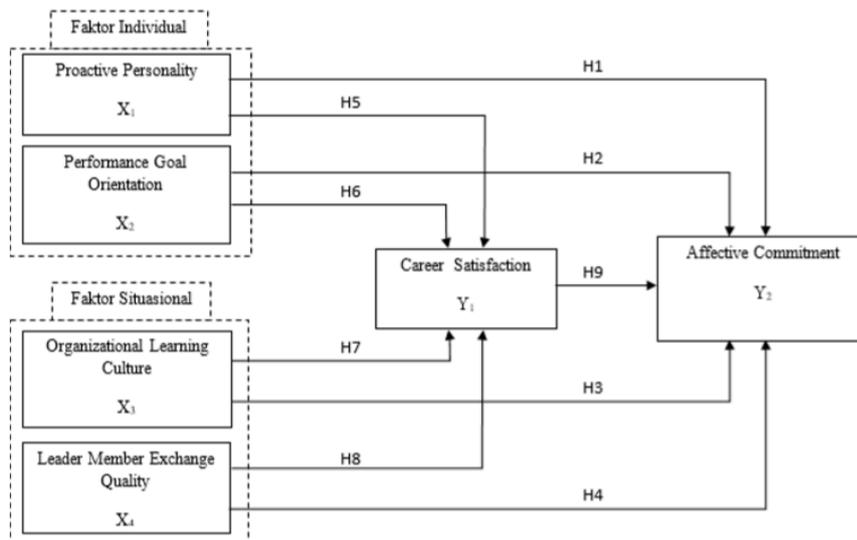


Figure 1 – Research Model

METHODS OF RESEARCH

This study uses a quantitative approach and the data collection techniques used are by distributing questionnaires. There are 123 generation y employees of the communication company who involved in this study to provide data to determine the effect of individual factors (proactive personality & performance goal orientation) and situational factors (organizational learning culture & leader-member exchange) on career satisfaction and affective commitment among generation y employees. The technique of determining the

sample in this study used a purposive sampling technique and the data testing techniques used in this study were PLS.

RESULTS AND DISCUSSION

Based on PLS analysis, this study examines the effect of individual factors and situational factors on career satisfaction and affective commitment among generation y employees.

H1: Proactive personality has a positive and significant influence on affective commitment. The influence of proactive personality on affective commitment shows the calculation of path coefficient value to 0.187, t-statistic of $2.387 > 1.64$. These statistical results prove that there is a positive and significant influence between proactive personality and affective commitment. Therefore, the research hypothesis which states that there is a significant influence between proactive personality and affective commitment is accepted.

This shows that proactive millennial employees are a form of affective commitment to this company. As explain by Gudermann (2010), if employees are involved in the opportunity to change the environment to get a benefit for employees and for the organization, it can affect the attachment of employees to the organization, because it will be a positive work experience. Thus, proactive employees can facilitate affective commitment (Thomas et al., 2010).

H2: Performance goal orientation has a positive influence on affective commitment. The influence of performance goal orientation on affective commitment shows the calculation of path coefficient value to 0.017, t-statistic of $0.198 < 1.64$. These statistical results prove that there is no statistically proven positive and significant influence between performance goal orientation and affective commitment. Therefore, the research hypothesis which states that there is a significant influence between performance goal orientation and affective commitment is rejected.

This shows that generation y employees in this company who have a performance goal orientation are not strong enough to affect affective commitment directly. This study is in line with Park and Joo (2010) who found that performance goal orientation has a positive not significant relationship to affective commitment.

H3: Organizational learning culture has a positive influence on affective commitment. The influence of organizational learning culture on affective commitment shows the calculation of path coefficient value to 0,287, t-statistic of $2,935 > 1,64$. These statistical results prove that there is a positive and significant influence between organizational learning culture and affective commitment. Therefore, the research hypothesis which states that there is a significant influence between organizational learning culture and affective commitment is accepted. This result is in line with Park and Joo (2010) who found that employees who felt the organization could maintain and support organizational learning, employees were inclined more committed in his organization (Joo, 2010).

H4: Leader member exchange has a positive influence on affective commitment. The influence of leader member exchange on affective commitment shows the calculation of path coefficient value to 0,191, t-statistic of $2,519 > 1,64$. These statistical results prove that there is a positive and significant influence between organizational learning culture and affective commitment. Therefore, the research hypothesis which states that there is a significant influence between leader member exchange and affective commitment is accepted.

This shows that millennial employees who feel the high-quality leader-member exchange in their work environment will increase their affective commitment. The importance of this support comes from research that reports strong commitment among employees who see alignment between their own goals and those of the organization (Reichers, 1986; Wayne et al. 1997; Vancouver & Schmitt, 2006; Joo and Ready, 2012).

H5: Proactive personality has a positive and significant influence on career satisfaction. The influence of proactive personality on career satisfaction shows the calculation of path coefficient value to 0.287, t-statistic of $3,568 > 1.64$. These statistical results prove that there is a positive and significant influence between proactive personality and career satisfaction.

Therefore, the research hypothesis which states that there is a significant influence between proactive personality and career satisfaction is accepted.

This shows that millennial employees who have high proactivity in their work environment tend to feel higher career satisfaction as well. Like previous studies, an employees who have high proactive personality will affect their career satisfaction in their workplaces (Ng et al., 2005; Seibert et al., 2001; Bernett and Bradley, 2007; Joo and Ready, 2012).

H6: Performance goal orientation has a positive influence on career satisfaction. The influence of performance goal orientation on career satisfaction shows the calculation of path coefficient value to 0.308, t-statistic of 3,663 > 1.64. These statistical results prove that there is a positive and significant influence between performance goal orientation on career satisfaction. Therefore, the research hypothesis which states that there is a significant influence between performance goal orientation and career satisfaction is accepted.

This shows that millennial employees in this company who have high performance goal orientation will affect the satisfaction of their careers at work. The results of this study are in line with the opinion of Joo and Park (2010) which states that the performance goal orientation can positively influence employee career satisfaction when managers provide tasks or jobs that are appropriate to strengthen employee performance goal orientation.

H7: Organizational learning culture has a positive influence on career satisfaction. The influence of organizational learning culture on career satisfaction shows the calculation of path coefficient value to 0,172, t-statistic of 2,004 > 1,64. These statistical results prove that there is a positive and significant influence between organizational learning culture and career satisfaction. Therefore, the research hypothesis which states that there is a significant influence between organizational learning culture and career satisfaction is accepted.

This shows that millennial employees in this company feel the existence of organizational learning culture in their workplace that seems to have high career satisfaction. In accordance with the statement of Glisson and Durick (1988) which says that the more employees who use employee capabilities, the more satisfied employees are with their jobs. Culture for organizational learning can create opportunities for continuous learning, encourage collaboration and team learning, build systems for capturing and sharing learning, and use leaders who model and support learning at the individual, team and organizational level (Joo and Ready, 2012).

H8: Leader member exchange has a positive influence on career satisfaction. The influence of leader member exchange on career satisfaction shows the calculation of path coefficient value to 0,225, t-statistic of 3,238 > 1,64. These statistical results prove that there is a positive and significant influence between leader member exchange and career satisfaction. Therefore, the research hypothesis which states that there is a significant influence between leader member exchange and career satisfaction is accepted.

This shows that millennial employees in this company who feel the high-quality leader-member exchange, more feel the career satisfaction at work. According to Graen and Uhl-Bien quoted by Han (2010) stated that when leader member exchange levels are high, employees tend to have a good relationship (trust-based) with their superiors. Employees likely to get resources and basic information support from their supervisors. Furthermore, the person may be satisfied with their supervisors because their supervisors can provide social support, to what extent the person is surrounded by other people who are sympathetic and caring (Noe et al., 2005).

H9: Career satisfaction has a positive influence on affective commitment. The influence of career satisfaction on affective commitment shows the calculation of path coefficient value to 0,225, t-statistic of 3,238 > 1,64. These statistical results prove that there is a positive and significant influence between career satisfaction and affective commitment. Therefore, the research hypothesis which states that there is a significant influence between career satisfaction and affective commitment is accepted.

This shows that millennial employees who feel career satisfaction directly can increase affective commitment to the company. This is in line with the statement of Igbaria and Greenhaus (1992) who say that employees who are satisfied with their careers can see

greater benefits in maintaining membership in their organizations than employees whose careers are less satisfying. This study is also in line with the statements of Sattavorn (2018), Matahanankoon (2007), Igarria and Greenhaus (1992) who find that career satisfaction has a significant effect on affective commitment.

CONCLUSION

Based on the previous discussion, it can be concluded that the career satisfaction of millennial employees in this company can be significantly influenced by individual factors (proactive personality, performance goal orientation) and situational factors (organizational learning culture, and leader-member exchange). This is in line with research conducted by Joo and Ready (2012) who found that proactive personality, performance goals orientation, organizational learning culture, and leader-member exchange can significantly influence career satisfaction.

The affective commitment of millennial employees in this company can be influenced by proactive personality, organizational learning culture, leader-member exchange, and career satisfaction. Whereas the performance goal orientation does not significantly influence affective commitment.

REFERENCES

1. Allen, N. J., & Meyer, J. P. (1996). Affective, continuance, and normative commitment to the organization: An examination of construct validity. *Journal of Vocational Behavior*, 49(3), 252-276.
2. Barnett, B., & Bradley, I. (2007). The impact of organizational support for career development on career satisfaction. *Career Development International*, 12 (7),617-636.
3. Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior: A measure and correlates. *Journal of Organizational Behavior*, 14(2), 103-118.
4. Button, S.B., Mathieu, J.E. and Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational behavior and human decision processes*, 67(1), 26–48.
5. Dweck, C. S. (1986). Motivational processes affecting learning. *American psychologist*, 41(10), 1040.
6. Egan, T. M., Yang, B., & Bartlett, K. R. (2004). The effects of organizational learning culture and job satisfaction on motivation to transfer learning and turnover intention. *Human Resource Development Quarterly*, 15(3), 279– 301. <https://doi.org/10.1002/hrdq.1104>.
7. Eisenberger & Rhoades. (2001). Affective commitment to organization: The contribution of perceived organizational support. *Journal of Applied Psychology*. Vol. 86, `No.5, 825-836.
8. Garvin, D. A. (1993). Building a learning organization (Vol. 71, No. 4, pp. 7891). July-August: *Harvard Business Review*.
9. Gattiker, U. E., & Larwood, L. (1988). Managing technological development: strategic and human resources issues (No. 1). de Gruyter.
10. Graen, G., & Uhl-Bien, M. (1995). Relationship based approach to leadership: development of leader-member exchange [LMX] theory of leadership over 25 years. *Leadership Quarterly*, 6(2), 219–247. [https://doi.org/10.1016/10489843\(95\)90036-5](https://doi.org/10.1016/10489843(95)90036-5).
11. Gorman, P., Nelson, T., & Glassman, A. (2004). The Millennial generation: A strategic opportunity. *Organizational Analysis*, 12(3), 255–270.
12. Godshalk, V. M., & Sosik, J. J. (2003). Aiming for career success: The role of learning goal orientation in mentoring relationships. *Journal of Vocational Behavior*, 63(3), 417-437.
13. Gudermann, M. (2010). The relationship between proactive personality, affective commitment and the role of job stressors.

14. Han, G. (2010). Trust and career satisfaction: The role of LMX. *Career Development International*, 15(5), 437–458. <https://doi.org/10.1108/13620431011075321>.
15. Heslin, Peter A. 2005. Conceptualizing and evaluating career success. *Journal of Organizational Behavior*, 113-136.
16. Howe, N., & Strauss, W. (2009). *Millennials rising: The next great generation*. Vintage.
17. Joo, B. K., & Park, S. (2010). Career satisfaction, organizational commitment, and turnover intention: The effects of goal orientation, organizational learning culture and developmental feedback. *Leadership & Organization Development Journal*, 31(6), 482-500.
18. Joo, B. K., & Ready, K. J. (2012). Career satisfaction: The influences of proactive personality, performance goal orientation, organizational learning culture, and leader-member exchange quality. *Career Development International*, 17(3), 276-295.
19. Joo, B. K., Park, S., & Oh, J. R. (2013). The effects of learning goal orientation, developmental needs awareness and self-directed learning on career satisfaction in the Korean public sector. *Human Resource Development International*, 16(3), 313-32.
20. Liden, R. C., & Maslyn, J. M. (1998). Multidimensionality of leader-member exchange: An empirical assessment through scale development. *Journal of management*, 24(1), 43-72.
21. London, M. (1983). Toward a theory of career motivation. *Academy of management review*, 8(4), 620-630.
22. Mercurio, Z. A. (2015). Affective commitment as a core essence of organizational commitment: An integrative literature review. *Human resource development review*, 14(4), 389–414. <https://doi.org/10.1177/1534484315603612>.
23. Myers, K. K., & Sadaghiani, K. (2010). Millennials in the workplace: A communication perspective on millennials' organizational relationships and performance. *Journal of Business and Psychology*, 25(2), 225-238.
24. Ng, T. W. H., Eby, L. T., Sorensen, K. L., & Feldman, D. C. (2005). Predictors of objective and subjective career success: a meta-analysis. *Personnel Psychology*, 58, 367–408. [https://doi.org/10.1016/S0378-7206\(99\)00004-X](https://doi.org/10.1016/S0378-7206(99)00004-X).
25. Ng, E., Lyons, S. T., & Schweitzer, L. (Eds.). (2012). *Managing the new workforce: International perspectives on the millennial generation*. Edward Elgar Publishing.
26. Renee Barnett, B., & Bradley, L. (2007). The impact of organisational support for career development on career satisfaction. *Career Development International*, 12(7), 617-636.
27. Robinson, J. M. (2000). Structural Determinants of Job Satisfaction and Organizational Commitment in Turnover Models, 9(4), 479–493.
28. Seibert, S. E., & Kraimer, M. L. (2001). The five-factor model of personality and career success. *Journal of vocational behavior*, 58(1), 1-21.
29. Thomas, J. P., Whitman, D. S., & Viswesvaran, C. (2010). Employee proactivity in organizations: A comparative meta-analysis of emergent proactive constructs. *Journal of Occupational and Organizational Psychology*, 83(2), 275–300. <https://doi.org/10.1348/096317910X502359>.

DOI 10.18551/rjoas.2019-08.28

ANALYSIS OF INCOME GROWTH AND EVALUATION OF ECONOMIC DEVELOPMENT IN CENTRAL SULAWESI, INDONESIA

Tope Patta

Faculty of Economics and Business, University of Tadulako, Palu, Indonesia

E-mail: pattatope@yahoo.com

ABSTRACT

This study aimed to determine the GRDP per capita growth rate in Central Sulawesi to community income distribution. The analysis tool used was regression statistics using data trends over the previous eight years period. The research result indicated that the GRDP per capita growth in Central Sulawesi within 2011-2018 period did not exhibit significant income distribution improvement. The high GRDP per capita growth rate is benefited by high-income individuals. On the other hand, people at the lower income levels could not benefit from economic development. Therefore, the community empowerment program and infrastructure development should be considered as main agenda of development in Central Sulawesi. It is conducted to ensure all community groups could benefit from access to economic opportunities and public services.

KEY WORDS

Growth, income, equity, economy, Central Sulawesi.

Economic development is a process of increasing total income and income per capita by taking into account population growth and fundamental changes in the economic structure of a country. Income distribution is an effort carried out by the government to ensure community income is distributed equally. Equitable distribution of income does not mean each citizen obtain the same amount of income. However, they are given the same opportunity to gain access to economic resources as an endeavor to improve living standard (Novianto and Sudarsono 2018). The national and regional economic development goals are high economic growth and GDP per capita, as well as equitable distribution of development outcomes to improve community welfare.

High GRDP per capita growth rates in Central Sulawesi without equitable development create weak regional economic structures, as it relies on exploiting natural resources. This condition generates inequality of access to education. Low levels of education would generate low productivity and income (Sari, 2018). The gap in the level of education causes a greater level of income gap (Timothy, 2014). Equitable development is a necessity to ensure every community member of Central Sulawesi may benefit from regional development.

Inequality of income in Central Sulawesi society would cause social unrest which ultimately disrupts regional stability. Therefore the process of economic development in Central Sulawesi analyzed two points of view, especially in analyzing the relationship between the growths of regional per capita GRDP with equitable development in recent years. This research endeavored to determine a relationship between the growths of GRDP per capita with equitable development. It also endeavors to determine whether the regional development generated qualified GRDP growth, especially in terms of equity, because the growth of regional GRDP per capita has always been higher than the growth of national GRDP per capita in recent years. The increasing aggregate demand of the people of Central Sulawesi indicated economic characteristics such as; the relative increase in people's purchasing power, the relative increase in investment interest, and the declining capacity of unemployed individuals in various sectors.

LITERATURE REVIEW

According to Schumpeter (1912), economic growth occurs in line with innovation from entrepreneurs. In this case, innovation is the application of new knowledge and technology in the business field. Innovation influences in various manners: the introduction of new technology encourages higher profits and imitation of innovation. The imitation of new technology would increase production output. The economic actors are seen as creatures that continue to innovate in advancing the economic cycle itself. However, innovation is full of instability. Kuznets (1955) stated that economic growth is an increase in the long-term ability of a country in providing various types of economic goods in large quantities to its population. According to Baran (1962), economic growth can also be interpreted as a per capita increase of the material output of goods produced within a certain time interval.

Despite the mainstream economic framework and countries policies adopting political growth, there is various criticisms against it. One of the sharpest criticisms on the concept of economic growth is from the Commission on the Measurement of Economic Performance and Social Progress, led by Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi (Stiglitz, 2009). The commission, formed by former French President Nicholas Sarkozy in early 2008, criticized the Gross Domestic Product (GDP) as a measure of increasing economic activity most used by several countries possess issues. GDP is a manner to measure "market production" instead of economic welfare. Therefore, measuring GDP and its growth as an indicator of economic welfare is very ambiguous and produce erroneous indications on society condition. Therefore it would lead to incorrect policymaking. According to these individuals, the equal distribution of income between individuals in society is also important to consider in development process. The measure of income distribution or the measure of income sharing imbalance is a quantitative measure that describes the equitable distribution of income generated by various economic actors.

The discussion of inequality in income distribution was initially dominated by Kuznetz hypothesis. Using cross-country (cross-section) data and surveys/observations in each sector (time series), Kusnetz found a relationship between income distribution and inverted U-per capita income levels. This result was interpreted as the evolution of income distribution in the process of transition from a rural economy to an urban or economic economy. At the beginning of the development process, inequality in income distribution increased as a result of the process of urbanization and industrialization. At the end of the development process, inequality decreases. It would occur at the time urban areas sectors are capable to absorb the majority of the workforce from rural areas (the agricultural sector) or when agriculture production and income generation is smaller.

Based on the framework that underlies the "Kuznetz hypothesis", there are several questions that always arise. Whether there is a long-term positive correlation between the level of income (growth rate) and the level of equity in the distribution of income or a correlation between the level of income per capita and the amount of income disparity after several years period. Whether there is a relationship between increasing average income per capita (which reflects the higher level of economic development) and the level of income distribution in the form of an "inverted U curve", as stated in Kuznetz's hypothesis. Whether it is possible inequality will increase again (U curve appears reversed, second) or not.

Based on empirical studies assessing Kusnetz's hypothesis, using macro data from several countries, most of these studies supported the Kuznets hypothesis. However, several studies reject the Kusnetz' hypothesis. Deininger and Squire (1996) do not exhibit a systematic relationship between growth income and distribution patterns. Despite this hypothesis was accepted, the majority of the studies exhibited that the positive relationship between growth and equity over the long term is only evident for the group of advanced industrial countries (groups of countries with high-income levels). The research result must be responded critically because the cross-section study approach has several weaknesses. The approach does not include the influence of income distribution development in each country individually. For example, the level of the income distribution (as measured by the Gini index) in the previous period (period $t = 0$) greatly influences the current level of income

distribution or income growth inequality ($t = 1$) in a country.

It is not surprising that there is no standard theory that can be used to analyze the relationship between income and distribution. It is wrong to assume that this theory applies to all countries. One theory can usually only be used to analyze in certain terms and certain communities. Therefore, this hypothesis was assessed in the context of the Central Sulawesi region. It determined whether the growth of per capita income (GRDP per capita) goes hand in hand with the distribution of income between individuals in the community as has been widely discussed by experts over the years.

METHODS OF RESEARCH

The study used secondary data in the form of time series of GRDP per capita growth (percent) and Gini coefficients in Central Sulawesi from 2011 to 2018. The data were obtained from the Central Statistics Agency of Central Sulawesi. Analysis tool used was Regression equation models (Rencher and Schaalje, 2008).

$Y = AX_i^{B_i} E$ transformed in the form of Ln into a linear form which is described as follows:

$$\ln Y = \beta_0 + \beta_1 \ln X_1 + \varepsilon$$

Where: Y = Central Sulawesi Province GRDP per capita growth; X_1 = Central Sulawesi Province Gini Coefficient; β_0 = Constant; β_1 = Regression coefficient, as well as elasticity; ε = Epsilon.

Calculations used simple regression analysis model formulas. Data processing was conducted through computer facilities utilizing statistical data processing program or SPSS (Statistical Product and Service Solution) v.19 in professional manner.

RESULTS AND DISCUSSION

Recent GRDP per capita growth in Central Sulawesi has exhibited very positive results. This is indicated by constant positive growth in the last seven years. In general GRDP per capita growth in Central Sulawesi is always positive and tends to be higher than the growth of Indonesia's GRDP per capita. Central Sulawesi GRDP per capita growth based on Constant Price (ADHK) 2011 was 7.92 percent. It exhibited a slight decrease in 2012 at 7.63 percent. It increased to 7.75 percent in 2013. GRDP per capita of Central Sulawesi in 2014 increased by 3.43 percent as a result of government regulations that prohibit the export of raw goods especially mining raw materials sector. In 2015, the GRDP per capita growth in Central Sulawesi increased to 13.67 percent due to increased exports from the nickel industry in Morowali Regency. In 2016, the GRDP per capita growth in Central Sulawesi declined to 8.27 percent. Regardless, it was the highest economic growth in Indonesia. In 2017, GRDP per capita growth in Central Sulawesi declined to 5.55 percent as a result of declining nickel exports from Morowali Regency to China. The declining GRDP growth per capita continued in 2018. It declined to 4.65 percent. It was caused by natural disasters that struck Palu City, Sigi Regency, Donggala Regency, and Parigi Moutong Regency on September 18th, 2018 (<https://sulteng.bps.go.id>).

Based on the Central Statistics Agency (BPS) of Central Sulawesi Province (<https://sulteng.bps.go.id>), the Central Sulawesi Gini ratio in 2011 was 0.352 points. The condition increased to 0.374 points in 2012. It continued to increase at 0.389 in 2013. The results of the publication of the BPS data exhibited that there has been an increase in individual income inequality in Central Sulawesi during the 2011-2013 period. However, this coefficient value was suppressed in 2014 by 0.362 points. It increased in 2015 up to 0.374. In 2016, the Gini coefficient was reduced to 0.362 points. In 2017, it continued to decrease up to 0.355 points. In 2018, the Gini coefficient returned to 0.346 points.

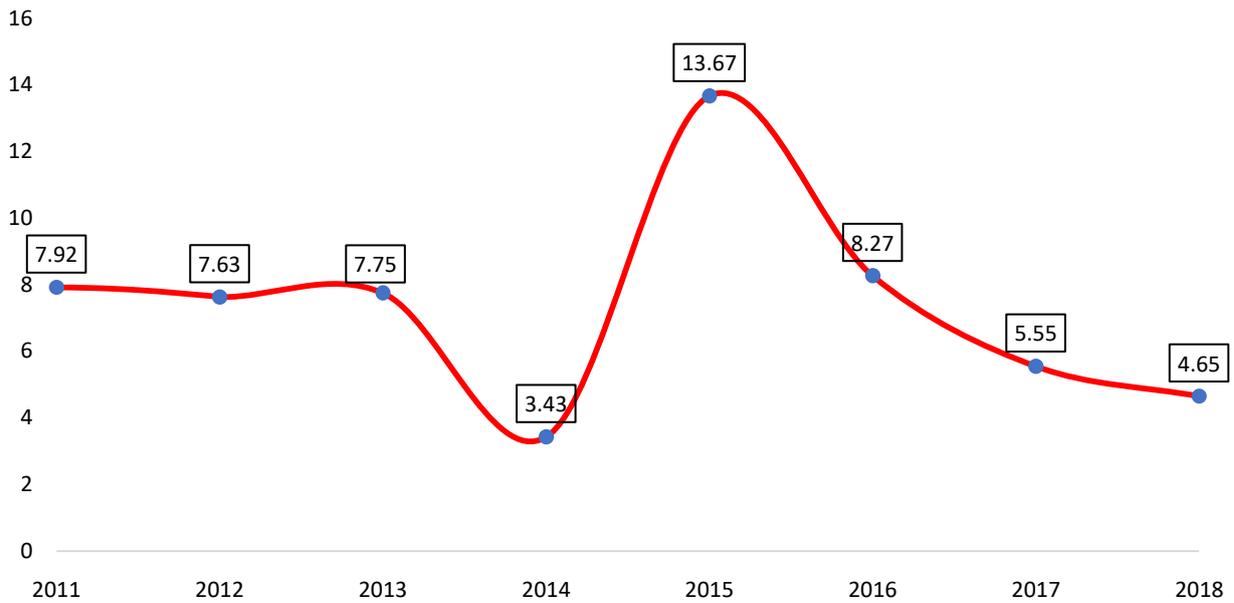


Figure 1 – GRDP per capita growth (percent) in 2011-2018 (Source: Processed data, 2019)

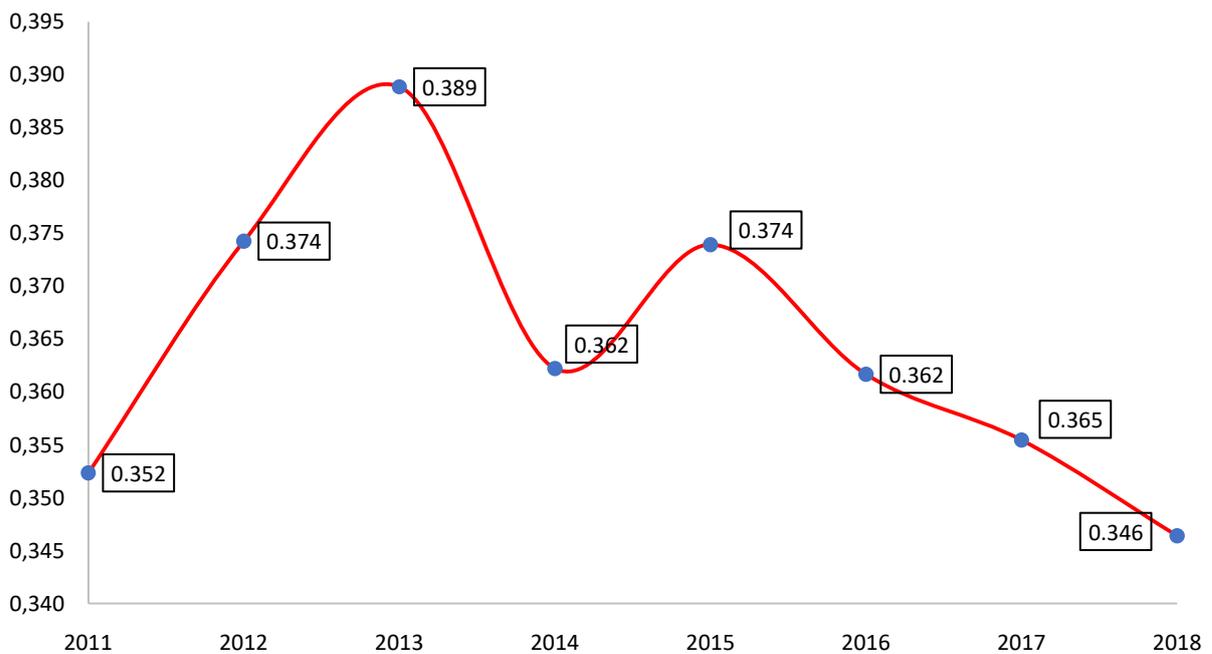


Figure 2 – Gini Ratio in 2011-2018 (Source: Processed data, 2019)

In recent years the Central Sulawesi Gini index has become a concern of academics and politicians. This is caused by the understanding that the greater or wider the index, it means that low-income groups are slower to achieve a more established life. On the other hand, the well established continue to get richer in a quick manner. This opinion has concerned the politicians in Central Sulawesi about the great risk of inequality and injustice. The most serious risk is chaos. Conflicting background of intolerance arises due to social and economic inequality. On the other hand, the GRDP per capita growth is expected to be able to push the Gini index to a lower level.

Based on the results of linear regression data analysis, the economic growth is exhibited through the Gross Regional Domestic Product (GRDP per capita) does not significantly affect the decrease in the Gini coefficient. This is reinforced by the low value

of the coefficient of determination (R^2) at 46 percent. The Gini coefficient value is more influenced by other factors and instead of regional economic growth. A positive b_1 value (0.042) indicates that the higher GRDP per capita growth in Central Sulawesi increases individual inequality in Central Sulawesi society. This finding is very plausible as exhibited through the share of economic growth in Central Sulawesi. It is dominated by the mining sector especially Morowali Regency contribution through the mining sector and processing industry from the mining products. This generated a lack of contribution from the lower class in regional economic development. The GRDP per capita growth in Central Sulawesi is high. However, it is not balanced by income distribution. Individuals possessing low education find it increasingly difficult to access employment. The high level of economic inequality has resulted in low-income groups being unable to access basic needs and services such as food, health, and education. This is indicated by the low value of the Central Sulawesi Human Development Index (HDI) at 68.88 points, compared to the National HDI at 71.39 points. Therefore the local government must focus on overcoming this imbalance through community empowerment programs in the form of educational assistance as well as health and microenterprise. In addition, infrastructure development is required to improve access and reduce logistics costs between regions. Local governments need to involve industry players to contribute to the development of vocational and technical school curriculum. Under the partnership, it is hoped that private companies will offer training and internship opportunities for students and teachers. This reform is aimed at increasing the expertise of vocational students and further strengthening the skills of the Central Sulawesi workforce because inequality in Central Sulawesi is closely related to inequality in accessing economic opportunities and public services.

CONCLUSION

GRDP per capita growth in Central Sulawesi is always higher than the national average growth. However, it has not been able to improve the income gap between individuals in Central Sulawesi society. This is indicated by the results of a simple regression analysis which exhibited that there is no significant relationship between the GRDP per capita growth in Central Sulawesi and the decreasing Gini coefficient value. Therefore the Central Sulawesi regional government must focus on empowerment programs to increase community access to economic opportunities and public services.

REFERENCES

1. Novianto, S. & Sudarsono, H. 2018. Analysis Of Poverty Level In Districts Cities of Central Jawa, *Jurnal Ekonomi Pembangunan*. Volume 16. No.1, 1-12.
2. Sari, N.P. 2018. Minimum Wage Implications and Poverty Numbers East Java Province, *Jurnal Ekonomi Pembangunan*, Vol.16.No. 2,116-121.
3. Timothy, A. 2014. Economists Debate: Has All the Important Stu\$ Already Been Invented?", *The Wall St. Journal*, June 14, 2014.
4. Schumpeter, J.A. 1912. *The Theory of Economic Development*. CA: Tenth Printing.
5. Kuznets. 1955. Economic Growth and Income Inequality. *Amer. Econ. Rev.*, 45(1), 1-28.
6. Baran, P.A. 1962. *The Political Economy of Growth*. US: Penguin Books.
7. Stiglitz, J. 2009, Report of the Commission on the Measurement of Economic Performance and Social Progress, Paris: The Commission on the Measurement of Economic Performance and Social Progress. <http://www.stiglitz-sen-fitoussi.fr>.
8. Deininger, K. & Squire, L. 1996. A new data set measuring income inequality (English)". *The World Bank economic review*. Vol. 10, no. 3 (September 1996), 565-591.
9. Rencher, A.C. & Schaalje, G. B. 2008. *Linear Models Statistics 2nd Edition*, John and Sons, Inc, Hoboken, New Jersey.
10. Statistic of Sulawesi Tengah Province, *Sulawesi Tengah Province in Figures 2011-2018*, Palu, Sulawesi Tengah.

DOI 10.18551/rjoas.2019-08.29

USER BEHAVIOUR INTENTION USING UTAUT2 MODEL: A SYSTEMATIC LITERATURE REVIEW

**Zahra Fithriya, Alexandri Mohammad Benny, Purnomo Margo, Arifianti Ria,
Muftiadi Anang, Herawati Tety, Nugroho Danang, Ruslan Budiana**
Department of Business Administration, University of Padjajaran, Bandung, Indonesia
*E-mail: fithriya15002@mail.unpad.ac.id
ORCID: 0000-0002-2417-7703

ABSTRACT

The development of information communication technology (ICT) and also derivatives of its technology make it easier for the public to conduct online transactions. This study seeks prior research by using systematic literature to look at customer's Behavior Intention by using theories from Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) so as to understand the developments and new discoveries that have emerged in previous studies. A systematic literature review is used in this research methodology so the review can be explained systematically. Based on the findings of this literature review research aspires a method or framework that can be used for researchers as well as practitioners to understand the customer's Behavior Intention by using theories from UTAUT2 so that it can inspire further research.

KEY WORDS

UTAUT2, systematic literature review, behaviour intention, customer.

The faster development of information communication technology (ICT) and smart phones, smart technology and mobile application software (applications) have become a broad and integral part of everyday life (Alalwan, 2020). With more and more mobile applications are created and designed to be downloaded and used via smartphones or similar mobile platforms (e.g., Android platforms, iPad, tablets). In the first quarter of 2017, the number of applications available globally for download was around 2.2 million using the Apple App Store and 2.8 million for the Google Play Store and users had downloaded more than 178.1 billion applications on their mobile devices in 2017, the figure is expected to increase to 258.2 billion in 2022 (Alalwan, 2020). More and more users in using this technology become an attractive potential for individual acceptance in information systems research.

To understand individual acceptance in the use of information technology is the most recent research in information systems research (Venkatesh et al, 2012). There are several theoretical models used in developing theories in psychology and sociology used to explain technology acceptance and use. A review and synthesis of eight theories / models of technology use resulted in what is called the Unified theory of acceptance and use of technology (UTAUT, Venkatesh et al., 2003). UTAUT has distilled critical factors and contingencies related to predictions on behavioral intention in using technology. In research on longitudinal field studies specifically on the acceptance of employee technology, UTAUT explained about 70 percent of the variance in behavioral intention to use technology and about 50 percent of the variance in technology use (Venkatesh et al., 2012). In this study, it will explain the definitions, especially for theories related to behavioral intention.

The switch from traditional trade to using this technology is partly due to the advantages of safety, design and content factors are important factors in gaining customer confidence in mobile trading. In addition, consumers can also give a rating or value to customer satisfaction into added value when post-purchase, consumers can immediately conduct an evaluation and they also feel the effectiveness in responding to the entire product and service (Siahaan & Legowo, 2019).

In this study, researchers used an analytical approach to find research that has been done about user Behavior Intention using UTAUT 2 Model. The analysis was carried out to find out how to apply the theory that has been used in the user Behavior Intention research using UTAUT 2 Model. Basically, the purpose of this study is to identify user Behavior Intention using UTAUT 2 with systematic literature review, and offer some suggestions or references for future related research (Nugroho et al., 2019). The method of systematic literature review will provide information obtained from previous studies, therefore researchers can provide suggestions based on theory and empirical research. Furthermore, this entire article will discuss the concept of user Behavior Intention using UTAUT 2 Model, an explanation of the research methodology, and the results of a systematic literature review, identifying information obtained and suggestions for use based on theoretical perspectives.

LITERATURE REVIEW

The concept of the unified theory of acceptance and use of technology (UTAUT, Venkatesh et al., 2003) serves as a basic model and has been applied to various studies that use basic technology in both organizational and non-organizational settings. There is a lot of research on the application and replication of all models or parts of models in organizational settings that have contributed to strengthening generalizations (Venkatesh et al., 2012). There are three types of extensions / integration of the UTAUT concept. The first type of extension / integration that uses the UTAUT concept is to use new contexts, such as new technology (for example, collaborative technology, health information systems), new user populations (for example, health professionals, consumers) and new cultural settings (for example, China, India) (Venkatesh et al., 2012). The second type is to add new constructs to expand the scope of endogenous theoretical mechanisms described in UTAUT (Chan et al., 2008). The last is the third type, which is to carry out the process of inclusion of exogenous predictors from the UTAUT variable. The addition of views in the form applications, and extensions / integrations of UTAUT is valuable in broadening understanding of technology adoption and expanding theoretical boundaries of the theory.

Unified Theory of Acceptance and Use of Technology (UTAUT) is a theory about the acceptance of the latest technology that was first developed by Venkatesh et al., (2003). as a connection of eight previous theories, namely Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), Motivational Model (MM), Combined TAM-TPB (C-TAM-TPB), Model of Personal Computer Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). The UTAUT model was developed with four types of core constructs, namely expectations for performance (expectancy performance), expectations for effort (social expectancy), social influence (social expectancy), and conditions support (facilitating expectancy). In addition to the four constructs, there are four moderators, namely gender (age), age (age), experience (experience), volunteerism of users (voluntariness of use). In this theory explained by the tendency to behave Behavioral Intention and user behavior (Venkatesh et al., 2003).

According to Venkatesh et al., (2003).the resulting UTAUT model formulates the factors that give rise to system acceptance and usage with four key moderators that influence each other. The factors that give rise to user acceptance in the UTAUT model are: Performance expectancy, namely the level of user confidence that using a system will help users produce maximum work performance. Effort Expectancy, which is the level of ease felt by the user in using a system. Social Influence, i.e. one's awareness of the existence of another person using a system. The constructs that are incorporated in social influence are: Facilitating Conditions, namely the belief that there are organizational and technical facilities that support the use of the system. Behavioral Intention According to Ajzen, (1991) intention to consume is one of the motivational factors that influence behavior. Behavioral Intention is defined as the extent to which someone will use technology services in the future.

Then UTAUT2 was further developed by Venkatesh et al., (2012) by giving special attention to consumers. The UTAUT2 concept adds habit variables as a direct effect on consumers and indirect effects that shape behavioral intention. In this concept Venkatesh et

al., (2012) are aware that theorized the moderating effects of demographic characteristics on the habit-intention and habit-use relationships. The hypothesis of the UTAUT2 concept adds age, gender, and experience jointly moderate the effect of habit on technology use based on the underlying process of habit activation and enforcement. The fundamental difference between UTAUT and UTAUT2 is by creating new constructions and new relationships that expand the application of UTAUT, with the extensions; this becomes critical to making the predictive validity in a consumer context.

METHOD OF RESEARCH

The study was conducted with the help of using systematic literature review. This method helps identify and facilitate researchers for literature reviews of previous research. Systematic literature review was adopted from Tranfield et al, (2003), researchers conducted the determination of the inclusion of previous studies in accordance with the research theme and then conducted a process of exclusion of previous studies that were not in accordance with the recommendations of the research theme. The use of this methodology makes it easier for researchers to get comprehensive literature coverage. The methodology from Tranfield et al., (2003), uses 5 phases to facilitate the literature review process, namely planning, searching, screening, extraction, and synthesis, including reporting.

The researcher tries to make a plan in the research to be able to define the question. The review question in this study is "What is the application of the user Behavior Intention using the UTAUT2 Model?". The answer to this research question will facilitate the content and see the theory and practice that occur. The next step is to identify the research database and use the appropriate keystring on the database search for the research question.

The process of finding related articles in this research question is carried out using 1 electronic database from Scopus. The selection of this article is based on articles that give a good presentation about the application of the user Behavior Intention using the UTAUT2 Model, and related empirical research. The selection of keywords used in this study is "Unified Theory of Acceptance and Use of Technology" AND "behavioral intention" AND UTAUT2. Researchers use these keywords so they can see broadly about "Unified Theory of Acceptance and Use of Technology (UTAUT)" so that they can answer research questions from general to specific.

The results of the search from the Scopus electronic database resulted in 64 articles registered with the abstract. After that the researcher reviewed the results of the search using the research question "How is the application of the user Behavior Intention using the UTAUT2 Model?". Then the researchers conducted the article inclusion and exclusion techniques that have been determined to simplify the review of the article from the search results.

The inclusion criteria that researchers did were:

- Choose only articles in English;
- Only see articles in research papers;
- No Duplication;
- Read the Abstract which contains an explanation that matches the research question;
- Articles that show empirical research methods.

Exclusion Criteria that researchers do are:

- Do not choose articles other than English;
- Issue articles other than research papers (such as magazines, books, conference papers, proceeding papers, audio / video, Thesis / dissertation);
- Articles that do not fit the research question;
- There is Duplication.

Based on the results of the screening criteria above, the researcher got 64 articles from the results of the inclusion for the keystring search with a research question in the form of "How is the application of the user Behavior Intention using UTAUT2 Model" as a technique in general search, then the researcher does the inclusion again in accordance with the

research question only look for themes for user Behavior Intention using the UTAUT2 Model only.

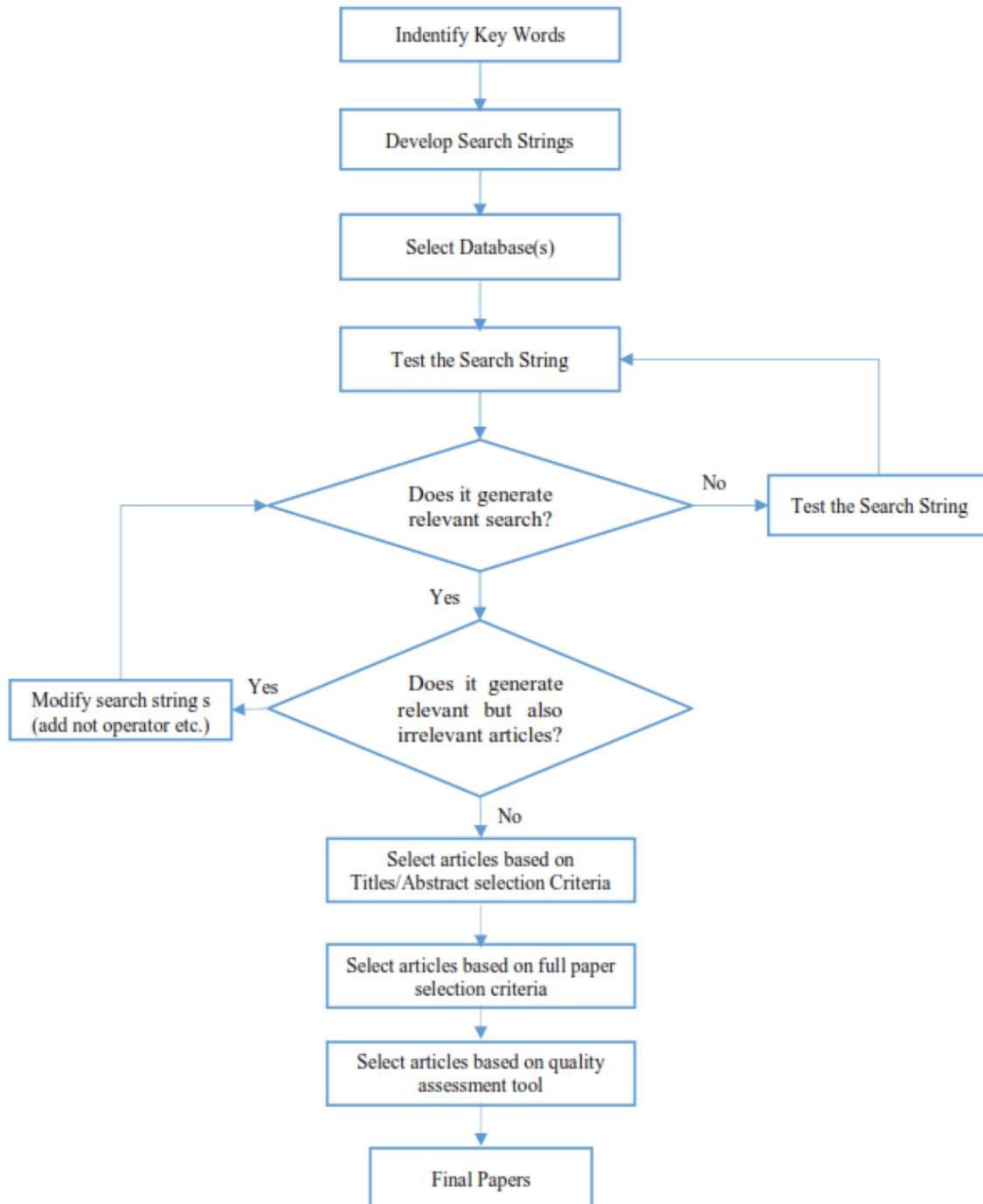


Figure 1 – Literature search process (Source: Chandorkar, 2013)

So researchers only get 20 articles that specifically answer from the research question. this states that research on user Behavior Intention using UTAUT2 Model is still a lot of experimental processes and is still testing the theory. Researchers deliberately look in general to see the method and also the theoretical basis used in general research. From these results the researchers conducted an in-depth review as outlined in Excel as the Inclusion database. The database using Excel is useful for being able to know and dissect the article in a structured manner and can make comments in the form of columns available

in Excel (Tranfield et al., 2003), With the use of an Excel column, researchers can classify information on aspects in the article. The information that researchers do is to classify articles in the form of Title, Author, Publisher, and year of publication. After doing this the researcher also made a grouping of paper types, research design, research method, and locus of the research. The next stage is the most important in making this article is to look at the purpose of the research, the definition of the research, keywords, theory used within the research, aspects, and analyzed units will be performed. The focus of this study is to look at the unit of analysis from previous research on user Behavior Intention using the UTAUT2 Model.

RESULTS OF STUDY

This section will explain the findings of systematic reviews that have been identified and are in the process of inclusion based on group criteria in the Excel database. Researchers will explain the findings of the article from the year and the publication of as many as 20 articles that specifically address the research question.

Based on the research findings, it is known that the beginning of the article published by year, namely the use of the theory of UTAUT2 in 2012 in the journal of Venkatesh et al., (2012) from the publication of MIS Quarterly. While the most research in using this theory is in 2018 as many as 8 articles and in 2013 no articles were detected in the search in the Scopus electronic database. There are 2 journals published from Telematics and Informatics about UTAUT2. The rest of the research on user Behavior Intention using UTAUT2 The model was published in a variety of different journals where all of these articles are included in the research question.

Based on the classification of the systematic literature review, researchers conducted a classification based on the paper type from Petersen et al. (2008) where there are 6 categories of research paper facets, namely:

- Validation Research: These techniques are investigated and have not yet been implemented in practice. Techniques used are for example experiments, i.e., work done in the lab;
- Evaluation Research: These techniques are implemented in practice and an evaluation of the technique is conducted. That means, it is shown how the technique is implemented in practice (solution implementation) and what are the consequences of the implementation in terms of benefits and drawbacks (implementation evaluation). This also includes identifying problems in the industry;
- Solution Proposal: A solution for a problem is proposed, the solution can be either novel or a significant extension of an existing technique. The potential benefits and the applicability of the solution are shown by a small example or a good line of argumentation;
- Philosophical Papers: Papers sketch a new way of looking at existing things by structuring the field in the form of a taxonomy or conceptual framework;
- Opinion Papers: These papers express the personal opinion of somebody whether a certain technique is good or bad, or how things should have been done. They don't rely on related work and research methodologies;
- Experience Papers: Experience papers explain on what and how something has been done in practice. It has the personal experience of the author.

Based on the results of previous research findings, there are 7 validation research articles, namely from Alalwan et al., (2018), Lallmahomed et al., (2017), Herrero et al., (2017), Khan et al. (2017), Tandon et al., (2016), Ain et al., (2015), and Venkatesh et al., (2012). For articles in the form of evaluation research there are 12 articles, from Mütterlein et al., (2019), Siahaan & Legowo, (2019), Goularte et al., (2018), Chopdar et al., (2018), Verkijika, (2018), Baabdullah, (2018), Makanyeza & Mutambayashata, (2018), Kranthi & Ahmed, (2018), Alalwan et al., (2017), Indrawati & Marhaeni, (2015), Hew et al., (2015), and Wong et al., (2015). While there is only one research in the form of philosophical paper, from

Ameen & Willis, (2018). All of these journals use the basic theory of UNTAUT 2 and use research design using SEM-PLS, except for one study by Siahaan & Legowo, (2019) using the SPSS Amos 22.

The application of user Behavior Intention using the UTAUT2 Model is a theory of Venkatesh et al., (2003) and later developed Venkatesh et al., (2012) which seeks to be oriented to the consumer technology acceptance and use context. In this research, it was found that there are two things that drive in UNTAUT2, namely variables in the form of hedonic motivation and price value. Hedonic motivation is an important determinant of behavioral intention and is something that can encourage performance expectancy, especially for non-organizational contexts. Researchers add moderator variables in the form of individual characteristics, namely gender, age, and experience; jointly moderate the effect of hedonic motivation on behavioral intention. of age and gender on the relationship between price value and intention.

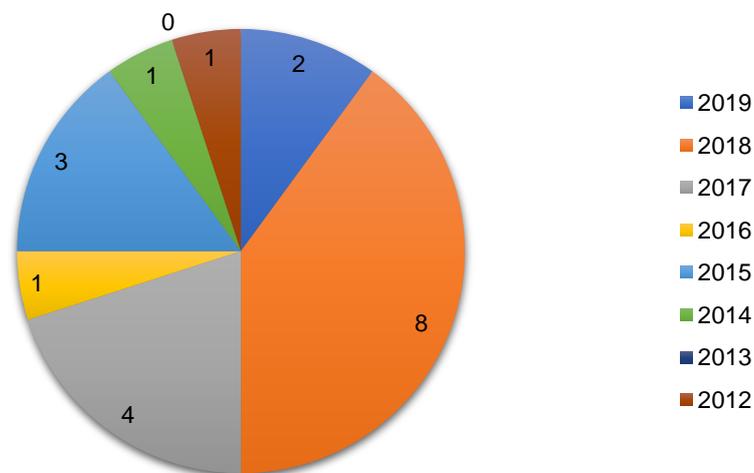


Figure 2 – Years of Articles Publications

The research by Mütterlein et al., (2019) is the latest research that uses UTAUT2 on the use of technology for innovative mobile gaming augment reality app by adding moderating variables in the form of lead-users which are assumed "product users who experience strong needs for a given new product earlier than the majority of its target market and who is expected to benefit significantly from a solution to those needs "towards the formation of behavioral intention. The variables used in this study are effort expectancy, performance expectancy, social influence, facilitating conditions, hedonic motivation, price value, and habit on behavioral intention. This study was a quantitative study with 273 participants that technology users differed from that of non-lead-users to students from various educational backgrounds in various cities in Germany and tried augment reality games by completing various missions. After completing the predefined route, the students received a link to an online survey. The results of this study are lead-usership has effects beyond idea creation and that lead-usership is a relevant factor for acceptance and use of research in the context of media innovation evaluation.

The following research is a development of UTAUT2 results from Venkatesh et al., (2012) by adding additional variables in the form of moderator variables such as those from Mütterlein et al., (2019) which adds lead-user variables, where lead-users experience a need that other users will have at a later point in time and expect high benefits from finding a solution to this need. Siahaan & Legowo, (2019) examines the online transportation App in Batam Area by adding moderator variables in the form of gender, age, experience and voluntary of use, while the construct used in this study is performance expectancy, effort

expectancy, facilitating conditions, price value, information quality, system quality, service quality, behavioral intention, user satisfaction and behavior. Chopdar et al., (2018) added a moderator variable in the form of Consumer's perceived risk: Privacy Risk and Security Risk in the use of the UNTAUT2 theory in mobile shopping apps in India and the USA. Verkijika, (2018) added moderator variables in the form of perceived risk and perceived trust in research on smartphone applications to facilitate m-commerce activities in Cameroon. Lallmahomed et al., (2017) research about e-government services adoption in a small island developing state in Mauritius, researchers see a moderator variable in the form of Resistance to change, where the result is an improvement in information quality and design technology will increase the security variable and privacy, increasing trust and reducing resistance to change. Research from Alalwan et al., (2017) added the variable of trust in researching about Jordanian internet banking customers. The results of the study were that the performance expectancy, effort expectancy, hedonic motivation, price value and trust variables had a significant and positive effect on behavioral intention. Tandon et al, (2016) added the COD mode of Payment variable and moderator variable in the form of Perceived risk: which consists of Financial risk, product performance risk, social risk, time risk, security risk. The findings of this study reveal that perceived risk has a relationship negative with behavioral intention, while drivers were positively associated with behavioral intention, while research not mentioned here adopts all variables from UNTAUT2 Venkatesh et al., (2012). while research from Ameen & Willis, (2018) is a conceptual study using variables relatively new variables from the concept of UNTAUT2, namely in the form of Effort Expectancy, Perceived relative advantage (usefulness), Enjoyment, Technological culture, price value, Social influence, Culture specific beliefs and values, National IT Development, Habit, Facilitating conditions after seeing the condition of the user smartphones and the actual use of smartphones by young Arabs consumers in three Arab countries: Iraq, Jordan, and the United Arab Emirates (U.A.E.). the findings of this study conclude that young people in Arabic do not object to meetings that are mediated by technological convenience. Therefore this technology provider enables the full use of mobile messaging applications that facilitate these meetings, such as Skype, Viber, FaceTime, and WhatsApp.

All of the literature review results from this study use quantitative methods with SEM-PLS as a tool to use surveys to collect large amounts of consumer data on the use of technology with theoretical assistance from the UTAUT2 Model to see their impact on behavioral intention.

CONCLUSION

This research was conducted using systematic literature review with the intention to answer the research question in the form of "How is the application of the user Behavior Intention using the UTAUT2 Model?". Researchers collect various articles and do inclusions to answer the criteria of the research questions. the result is 20 articles found from the Scopus electronic database. The first research about user Behavior Intention using UTAUT2 The model was detected starting in 2012 and starting to develop the following year.

The results of the literature review findings found that all previous studies were quantitative studies using survey methods. This is a research with validation and evaluation research where this research is still trying to implement and evaluate real conditions. This shows that research from this field is still fairly new and appealing because researchers want to examine empirical research can understand the situation in shaping the user Behavior Intention using the UTAUT2 Model. In this study there are findings of research to facilitate researchers and practitioners in the future.

Researchers suggest using Empirical research that can be done in the future is to use a theoretical framework from the Unified Theory of Acceptance and Use of Technology (UTAUT) 2 model base on customers context from Venkatesh et al., (2012). With additional modification of variables from Mütterlein et al., (2019), Siahaan & Legowo, (2019), Chopdar et al., (2018), Verkijika, (2018), Kranthi & Ahmed (2018), Alalwan et al., (2017), Tandon et al., (2016), and explanatory research from Ameen & Willis, (2018).

REFERENCES

1. Ain, N., Kaur, K., & Waheed, M. (2015). The influence of learning value on learning management system use : An extension of UTAUT2. *Information Development* 1–16, 1(16). <https://doi.org/10.1177/0266666915597546>.
2. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
3. Alalwan, A. A. (2020). International Journal of Information Management Mobile food ordering apps : An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management*, 50(February 2019), 28–44. <https://doi.org/10.1016/j.ijinfomgt.2019.04.008>.
4. Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). International Journal of Information Management Factors influencing adoption of mobile banking by Jordanian bank customers : Extending UTAUT2 with trust. *International Journal of Information Management*, 37(3), 99–110. <https://doi.org/10.1016/j.ijinfomgt.2017.01.002>.
5. Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., & Algharabat, R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk. *Journal of Retailing and Consumer Services*, 40(July 2017), 125–138. <https://doi.org/10.1016/j.jretconser.2017.08.026>.
6. Ameen, N., & Willis, R. (2018). A generalized model for smartphone adoption and use in an Arab context : A cross-country comparison cross-country comparison. *Information Systems Management*, 35(3), 254–274. <https://doi.org/10.1080/10580530.2018.1477300>.
7. Baabdullah, A. M. (2018). Technology in Society Consumer adoption of Mobile Social Network Games (M-SNGs) in Saudi Arabia: The role of social influence, hedonic motivation and trust. *Technology in Society*, 1(12). <https://doi.org/10.1016/j.techsoc.2018.01.004>.
8. Chan, K. Y., Gong, M., Xu, Y., & Thong, J. Y. L. (2008). "Examining User Acceptance of SMS: An Empirical Study in China and Hong Kong." *Proceedings of 12th Pacific Asia Conference on Information System*, Suzhou, China, July 3-7.
9. Chandorkar, P. (2013). *A Systematic Review of The Determinants and the Behaviour of Equity Risk Premium*. (P. S. Poshakwale, Ed.). Cranfield University.
10. Chopdar, P. K., Korfiatis, N., Sivakumar, V. J., & Lytras, M. D. (2018). Mobile shopping apps adoption and perceived risks : A cross-country perspective utilizing the Unified Theory of Acceptance and Use of Technology. *Computers in Human Behavior*. <https://doi.org/10.1016/j.chb.2018.04.017>.
11. Denyer, & Tranfield. (2003). Towards a methodology for developing evidence informed management knowledge by means of systematic review. *British Journal of Management*, 14, 207–222.
12. Goularte, A. C., Zilber, S. N., Goularte, A. C., Julho, U. N. De, Paulo, S., Zilber, S. N., ... Andre, S. (2018). The moderating role of cultural factors in the adoption of mobile banking in Brazil factors. *International Journal of Innovation Science*. <https://doi.org/10.1108/IJIS-11-2017-0119>.
13. Herrero, Á., Martín, H. S., & Salmones, M. del M. G. de los. (2017). Explaining The Adoption Of Social Networks Sites To Share User-Generated Content: A Revision of The Utaut2. *Computers in Human Behaviour*. <https://doi.org/10.1016/j.chb.2017.02.007>.
14. Hew, J.-J., Lee, V.-H., Ooi, K.-B., & We, J. (2015). What catalyses mobile apps usage intention: An empirical analysis. *Industrial Management & Data Systems*, 115(7).
15. Indrawati, & Marhaeni, G. A. M. (2015). Measurement for analyzing instant messenger application adoption using Unified Theory of Acceptance and Use of Technology 2. *International Business Management*, 9(4), 391–396.
16. Khan, I. U., Hameed, Z., Khan, S. U., & Beijing, T. (2017). Understanding Online Banking Adoption in a Developing Country : UTAUT2 with Cultural Moderators. *Journal of Global Information Management* Volume 25, Issue 1, January-March 2017, 25(1), 43–65. <https://doi.org/10.4018/JGIM.2017010103>.

17. Kranthi, A. K., & Ahmed, K. A. A. (2018). Determinants of smartwatch adoption among IT professionals – an extended UTAUT2 model for smartwatch enterprise. *International Journal Enterprise Network Management*, 9(3/4), 294–316.
18. Lallmahomed, M. Z. I., Lallmahomed, N., & Lallmahomed, G. M. (2017). Factors influencing the adoption of e-Government Services in Mauritius. *Telematics and Informatics*. <https://doi.org/10.1016/j.tele.2017.01.003>.
19. Makanyeza, C., & Mutambayashata, S. (2018). Consumers' acceptance and use of plastic money in Harare, Zimbabwe: Application of the unified theory of acceptance and use of technology 2. *International Journal of Bank Marketing*, 36(2), pp.379-392. <https://doi.org/10.1108/IJBM-03-2017-0044>.
20. Mütterlein, J., Kunz, R. E., & Baier, D. (2019). Technological Forecasting & Social Change Effects of lead-usership on the acceptance of media innovations: A mobile augmented reality case. *Technological Forecasting & Social Change*, 145(April 2017), 113–124. <https://doi.org/10.1016/j.techfore.2019.04.019>.
21. Nugroho, D., Purnomo, M., Hermanto, B., & Maulina, E. (2019). Social Entrepreneurship Intention: A Systematic Literature Review. *RJOAS*, 4(88), April 2019, 4(April), 86–94. <https://doi.org/10.18551/rjoas.2019-04.12>.
22. Petersen, K., Feldt, R., Mujtaba, S., & Mattsson, M. (2008). Systematic Mapping Studies in Software Engineering. *12Th International Conference on Evaluation and Assessment in Software Engineering*, 17, 10. <https://doi.org/10.1142/S0218194007003112>.
23. Siahaan, M., & Legowo, N. (2019). The Citizens Acceptance Factors of Transportation Application Online In Batam: An Adaptation Of The Utaut2 Model And Information System Success Model. *Journal of Theoretical and Applied Information Technology*, 97(6), 1666–1676.
24. Tandon, U., Kiran, R., & Sah, A. N. (2016). Understanding Online Shopping Adoption in India: Unified Understanding Online Shopping Adoption in India: Unified Theory of Acceptance and Use of. *Service Science*, 8(4)(November), 420–437.
25. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward A Unified View. *MIS Quarterly* Vol. 27 No. 3, Pp. 425-478/September 2003, 27(3), 425–478.
26. Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance And Use of Technology. *MIS Quarterly* Vol. 36 No. 1 Pp. 157-178/March 2012, 36(1), 157–178.
27. Verkijika, S. F. (2018). Telematics and Informatics Factors influencing the adoption of mobile commerce applications in Cameroon. *Telematics and Informatics*, (September 2017), 0–1. <https://doi.org/10.1016/j.tele.2018.04.012>.
28. Wong, C.-H., Tan, G. W.-H., Loke, S.-P., & Ooi, K.-B. (2015). Mobile TV: a new form of entertainment?". *Industrial Management & Data Systems*, 114(7), 1050–1067. <https://doi.org/http://dx.doi.org/10.1108/IMDS-05-2014-0146>.

DOI 10.18551/rjoas.2019-08.30

GENETIC VARIABILITY, CORRELATION AND PATH ANALYSIS OF RICE GENOTYPES IN RAINFED CONDITION AT LAMJUNG, NEPAL

Bhandari Kamana*, Poudel Ankur, Sharma Subarna
Institute of Agriculture and Animal Science, Lamjung Campus, Nepal

Kandel Bishnu Prasad
Department of Plant Breeding, Postgraduate Program, Institute of Agriculture and Animal
Science, Tribhuvan University, Kirtipur, Nepal

Upadhyay Koshraj
Institute of Agriculture and Animal Science, Gauradaha Campus, Nepal

*E-mail: kamana.vandari@gmail.com

ABSTRACT

An experiment on eleven rice genotypes was designed at field of Institute of Agriculture and Animal Science, Lamjung, under randomized complete block design with three replications from June-October, 2018 to study genetic variability and character association. Analysis of variance showed significant difference among the genotypes for all the characters studied except for grain yield and fertility percent which indicates the existence of sufficient genetic variability and potential for selection and further improvement. Grain yield was significantly positively correlated with panicle length while positively and non-significantly correlated with days of flowering, leaf area and straw yield except for plant height, SPAD60, fertility percent, thousand grain weight and effective tillers. Leaf area had maximum positive direct effect on grain yield followed by panicle length, thousand grain weight and effective tillers which indicates help for selection and improvement of rice genotypes. The higher value of correlation between panicle length and grain yield is due to the direct effect of panicle length which exhibit true relationship between them. The variability study showed that there was high genotypic coefficient of variation (GCV) and phenotypic coefficient of variation (PCV) for thousand grain weight. High heritability estimates coupled with high genetic advance as per percentage of mean (GAM) was found for thousand grain weight, days of flowering, leaf area and effective tillers which indicate the control of additive gene of action and a greater scope of selection for crop improvement.

KEY WORDS

Genetic advance, genotypic coefficient of variation, heritability, phenotypic coefficient.

Rice (*Oryza sativa L.*) is one of the important staple cereal crop feeding more than 3.5 billion global population (IRRI, 2017). It is the predominant staple food crop in Nepal and ranks first in position in terms of production and productivity thus contributed significantly to livelihood of majority of people (Tiwari et al., 2018). The production area, production and productivity of Lamjung district were recorded to be 14, 059 ha, 37, 772 ton & 2.687 ton ha⁻¹ respectively (MoAD, 2015/16). Majority of people depend on rainfed agriculture system and in this system drought is the major limiting abiotic stress that reduces productivity by 13– 35% (Rosegrant et al., 2002). Yield is very low in rainfed rice compared to favorable growing conditions. Early or late maturing rice genotypes could be potential alternative to overcome the drought effects under rainfed rice growing conditions. The variability, heritability and genetic advance on different traits of rice are necessary for developing appropriate breeding and selection strategies to increase yield. To overcome yield reduction under rainfed and upland conditions, breeding objective should be targeted for development of drought tolerant cultivars. The aim of this research is to evaluate rice genotypes in order to their genetic variability, character association in rainfed condition.

MATERIALS AND METHODS OF RESEARCH

Eleven rice genotypes (viz. KHUMAL-13, NR-B-B-31-3, IR87760-15-2-3-4, NR-11032-B-B-5-3, NR-11130-B-B-B-12, NR-11289-B-16-1, NR-11137-B-B-10, KHUMAL-7, KHUMAL-4, KHUMAL-8, ANADI (Check)) was carried out in Randomized Complete Block Design (RCBD) with 3 replication in a field of IAAS, Lamjung. The size of each block was 2m *1m and spacing between row to row and plant to plant was 20cm x 20 cm. The distance between two plots is 50 cm and distance between two replications was 1m. Each hill consists of 2-3 seedlings. Nitrogen 60kg ha⁻¹, phosphorous 20kg ha⁻¹, potassium 20kg ha⁻¹ as general recommendation for rainfed low land condition. Half dose of Nitrogen and full dose of phosphorous and potash was applied as a basal dose at transplanting and remaining half dose nitrogen was applied as split doses at 30 DAT and 45 DAT. Five plants were randomly selected from each plot in each replication and their means were used for the statistical analyses. Observations were recorded on different traits like plant height, leaf area, chlorophyll content, effective tillers/m², flowering days, panicle length, 1000 grain weight, grain yield (kg ha⁻¹) and straw yield (kg ha⁻¹).

Phenotypic and Genotypic coefficients of variation were calculated by the method suggested by Lush (1940) and Chaudhary and Prasad (1968).

$$\text{Phenotypic coefficient of variation (PCV)} = \frac{\text{Phenotypic Standard Deviation}}{\text{General mean}} \times 100$$

$$\text{Genotypic coefficient of variation (GCV)} = \frac{\text{Genotypic Standard Deviation}}{\text{General mean}} \times 100$$

According to (Sivasubramanian and Menon 1973) PCV and GCV values more than 20% are regarded as high, whereas values less than 10% are considered to be low and values between 10 and 20 % to be moderate.

It was calculated by the formula given by Falconer (1996) which is as below:

$$H = \frac{vg}{vp} \times 100$$

Where: H = heritability in broad sense; Vp = phenotypic variance; Vg = genotypic variance.

The heritability percentage categorized as low, moderate and high as followed by (Robinson et al., 1949) as follows: 0 - 30% Low; 30 -60% Moderate; > 60% High.

Under selection expected genetic advances where for each character at 5% selection intensity was computed by the formula described by (Johnson et. al., 1955).

$$\text{Genetic Advance (GA)} = k$$

$$\sigma_p \cdot H$$

Where: k = constant (selection differential where k = 2.056 at 5% selection intensity); σ_p = phenotypic standard deviation; H = broad sense heritability.

Genetic advances as percent of mean was calculated to compare the extent of predicted advances of different traits under selection, using the formula $GAM = \frac{GA}{X} \times 100$ (Falconer, 1996), where GAM=genetic advances as percent of mean, GA = Genetic advances under selection, X = Mean of population in which selection will be employed.

RESULTS AND DISCUSSION

Plant height (cm). Significant result was observed for plant height and Khumal-4, khumal-7 and NR11137-B-B-10 were found to be significantly superior to all others genotypes and statistically at par with NR11115-B-B-31-3, NR11130-B-B-B-12 and NR11289-B-16-1. The average mean value was 139.53 whereas check value was 139.72.

Leaf area (cm²). Significant result was observed. Check value was found to be significantly superior to other genotypes whereas Khumal-13 was found to be lowest. The average mean value was 35.

SPAD60. Significant result was observed. Khumal-13 was found to be significantly superior and statistically at par with IR87760-15-2-3-4, NR11032-B-B-5-3, NR11130-B-B-B-12 and Khumal-8. The check variety value was 31.02. The average mean value was 34.36.

Effective tiller/m². Significant result was observed. Khumal-13 was found to be significantly superior and statistically at par with NR11289-B-16-1, Khumal-4 and Khumal-8. NR11032-B-B-5-3 and check variety showed least effective tiller. The average mean value was 34.36.

Days of flowering. Significant result was observed. Khumal-13 showed early flowering nature and statistically at par with NR11130-B-B-B-12. Check variety showed late flowering nature. The average mean value was 94.7.

Table 1 – Mean performance of rice genotypes

Genotypes	PH	LA	SPAD	NET	DAF
01.KHUMAL-13	118.14 ^d	24.16 ^e	40.8 ^a	246.6 ^a	79.6 ^f
02.NR11115-B-B-31-3	143.9 ^{abc}	34.29 ^{bcd}	34.02 ^{bc}	143.3 ^{cd}	88.3 ^{de}
03.IR87760-15-2-3-4	120.26 ^d	35.64 ^{bc}	37.19 ^{abc}	205 ^b	89.6 ^d
04.NR-11032-B-B-5-3	135.4 ^c	30.5 ^{cde}	38.34 ^{ab}	135 ^d	86.6 ^e
05.NR-11130-B-B-B-12	143.7 ^{abc}	26.4 ^{de}	35 ^{abc}	180 ^{bc}	83.3 ^{ef}
06.NR11289-B-16-1	153.81 ^{ab}	35.2 ^{bc}	32.27 ^{bc}	207 ^{ab}	96.6 ^{bc}
07.NR11137-B-B-10	156.36 ^a	38.05 ^{bc}	31 ^c	205 ^b	96.6 ^{bc}
08.KHUMAL-7	138.6 ^a	40.2 ^b	32.3 ^{bc}	191.6 ^b	92 ^{cd}
09.KHUMAL-4	157.4 ^a	34.6 ^{bcd}	31.5 ^c	215 ^{ab}	92.3 ^{cd}
10.KHUMAL-8	127.4 ^{cd}	33.6 ^{bcdde}	34.4 ^{abc}	208.33 ^{ab}	100.66 ^b
11.ANADI	139.72 ^{bc}	51.9 ^a	31.02 ^c	137.3 ^d	136.67 ^a
Grand mean	139.53	35	34.36	188.6	94.7
cv%	6.24	14.31	10.11	11.1	3.47
LSD	14.83	8.53	5.92	35.67	5.6
F test	***	***	*	***	***

Note: PH = plant height, LA= leaf area SPAD= chlorophyll content of leaf, NET= No. of effective tiller per m², DAF= Days of flowering.

Grain Yield (Kg ha⁻¹). Significant result was not observed. Highest grain yield was found in IR87760-15-2-3-4 whereas lowest grain yield was found in khumal-13. The average mean value was 4251.7.

Fertility percentage. Significant result was not observed. The highest fertility percentage was found in NR11289-B-16-1 whereas lowest value was found in check variety (Anadi). The average mean value was 87.2.

Table 2 – Mean performance of rice genotypes

Genotypes	GY	ST	TKW	F%	PL
01.KHUMAL-13	2783.3	4166.67 ^d	30.06 ^b	90.9	19.64 ^e
02.NR11115-B-B-31-3	4180.5	5388.8 ^{bcd}	22.93 ^{cde}	90.4	25.57 ^{cd}
03.IR87760-15-2-3-4	5291.67	5833.3 ^{abcd}	22.93 ^{cde}	80.4	29.28 ^{ab}
04.NR-11032-B-B-5-3	4462.5	4402.78 ^{cd}	41.03 ^a	87.2	25.6 ^{cd}
05.NR-11130-B-B-B-12	3055.5	6166.67 ^{abcd}	23.93 ^{cd}	89.8	24.2 ^{cd}
06.NR11289-B-16-1	4069.16	5005.56 ^{bcd}	20.6 ^e	92.6	25.5 ^{cd}
07.NR11137-B-B-10	4111.1	6513.89 ^{ab}	22.5 ^{de}	87.2	23.2 ^d
08.KHUMAL-7	5206.94	5650 ^{bcd}	28.83 ^b	87.4	24.9 ^{cd}
09.KHUMAL-4	4523.33	6430.56 ^{abc}	20.4 ^e	89.73	27.1 ^{bc}
10.KHUMAL-8	5275.56	5727.78 ^{bcd}	25.5 ^c	84.02	30.15 ^a
11.ANADI	3809.16	8000 ^a	28.73 ^b	79.23	22.97 ^d
Grand mean	4251.7	5753.28	26.14	87.2	25.3
cv%	24.46	19.65	5.6	7.34	6.19
LSD	1771.615	1926.272	2.49	10.91	2.66
F test	Ns	*	***	Ns	***

Straw yield (kg ha⁻¹). Significant result was observed. Check variety showed significantly superior and statistically at par with IR87760-15-2-3-4, NR11130-B-B-B-12, NR11137-B-B-10 and Khumal-4. Khumal-13 showed least straw yield. The average mean value was 5753.28.

Thousand grain weight (gm). Significant result was observed. NR11032-B-B-5-3 showed highly significant value than other genotypes and Khumal-4 and NR11289-B-16-1 showed least thousand grain weight. The check variety value was 28.73 and the average mean value was 26.14.

Panicle length (cm). Significant result was observed. Panicle length of Khumal-8 was found to be significantly superior and statistically at par with IR87760-15-2-3-4. Khumal-13 had least panicle length. The check variety value was 22.97 and average mean value was 25.30.

The result showed that panicle length (0.823**) was significant positive correlation with grain yield whereas leaf area (0.349), straw yield (0.085) and days of flowering (0.12) were positive correlation with grain yield. Plant height (-0.073), SPAD60 (-0.25), fertility percent (-0.432), thousand grain weight (-0.046) and effective tillers (-0.062) were negative correlation with grain yield. In this experiment, panicle length was highly significant positive correlated with grain yield. Similar results were reported earlier in rice by several workers in various character viz, for the association of grain yield and panicle length (Chandra et al., 2009; Gautam et al, 21018). Therefore, these character need to be considered for selection. Grain yield had positive correlation with leaf area, straw yield and days of flowering. In relation with days of flowering, similar results were reported by (Madhavilatha et al., 2005). Similar results was reported by (Marasis et al., 1980) for effective tillers.

Thousand grain weight (-0.046), plant height (-0.073), SPAD60 (-0.25) and effective tillers (-0.062) were negative correlation with grain yield. In relation with thousand grain weight, similar results was reported by Surek and Beser (2005). Contrast findings were reported by (Chandra et al., 2009) and (Shamsudddin 1986). In relation with plant height, similar results were reported by Senapati et al., (2009) and Hairmansis et al., (2010) which reveals that tallness in rice reduces the grain yield due to high accumulation of photosynthates on elongation of vegetative parts rather than reproductive parts and selection is devised on semi dwarf genotypes. However, contrast with (Kole and Hasib, 2008). Grain yield had positive correlation with leaf area, straw yield. Similar results were also reported in earlier research performed by (Konate et al., 2016) for straw yield.

Table 3 – Correlation coefficient analysis

	PH	LA	SPAD	PL	F%	TGW	NET/m ²	DAF	GY	SY
Pht	1									
la60	0.265	1								
spad60	-0.782**	-0.710*	1							
PI	-0.046	0.077	-0.153	1						
f %	0.403	-0.626*	0.094	-0.321	1					
TGW	-0.426	-0.096	0.523	-0.24	-0.166	1				
Effm2	-0.166	-0.419	0.186	-0.051	0.289	-0.424	1			
DAF	0.172	.897**	-0.598	0.012	-.642*	-0.038	-0.39	1		
Gyph	-0.073	0.349	-0.25	.823**	-0.432	-0.046	-0.062	0.12	1	
Stph	0.368	.764**	-.732*	0.075	-0.584	-0.369	-0.274	.773**	0.085	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). PH=Plant height, LA=leaf area at 60 Days of Transplanting 1 (DAT), SPAD60 = Chlorophyll at 60 DAT, PL=Panicle length, F%=Fertility percent, TGW=Thousand Grain Weight, NET/m²=Effective tillers per m², DAF=Days of 50 % flowering, GY=grain yield, ST=straw yield.

Path analysis shows the direct and indirect effect on total yield. Leaf area (0.849) shows highest positive direct effect on grain yield followed by panicle length (0.72), thousand grain weight (0.343) and effective tillers per m² (0.238). Highest negative direct effect is shown by days of flowering (-0.74) followed by straw yield (-0.32), SPAD60 (-0.249), plant height (-0.209) and fertility percent (-0.2034). The highest total grain yield is panicle length (

0.82) followed by leaf area (0.34), days of flowering (0.12) and straw yield (0.08). Same result was observed for plant height (Prasad et al., 2001). Panicle length, leaf area, days of flowering and straw yield shows direct effect on grain yield so these character may be considered important for crop improvement. Number of effective tillers per plant recorded positive direct effect on grain yield and was in confirmation with the findings of Agahi et al., (2007).

Table 4 – Path coefficient analysis showing direct (bold) and indirect effects of various traits in grain yield

	Pht	la60	SPAD60	PL	f%	TKW	Effm2	DAF	Stph
via pht90	-0.21	-0.06	0.16	0.01	-0.08	0.09	0.03	-0.04	-0.08
via la60	0.23	0.85	-0.60	0.07	-0.53	-0.08	-0.36	0.76	0.65
viaspad60	0.46	0.41	-0.58	0.09	-0.06	-0.31	-0.11	0.35	0.43
via PL	-0.03	0.06	-0.11	0.72	-0.23	-0.17	-0.04	0.01	0.05
via f %	-0.08	0.13	-0.02	0.07	-0.20	0.03	-0.06	0.13	0.12
via TGW	-0.15	-0.03	0.18	-0.08	-0.06	0.34	-0.15	-0.01	-0.13
via Effm2	-0.04	-0.10	0.04	-0.01	0.07	-0.10	0.23	-0.09	-0.06
via DAF	-0.13	-0.67	0.44	-0.01	0.48	0.03	0.29	-0.74	-0.57
via stph	-0.12	-0.25	0.24	-0.02	0.19	0.12	0.09	-0.25	-0.32
Gyph	-0.07	0.35	-0.25	0.82	-0.43	-0.05	-0.06	0.12	0.09

Pht = Plant height, la60=leaf area at 60 days of transplanting (DAT), SPAD60 = chlorophyll content, Effm2 = Effective tiller per m², f % = fertility percent, PL = panicle length DAF = Days of 50% flowering, stph = straw yield, gtp = grain yield, TGW = Thousand grain weight.

The results revealed considerable phenotypic and genotypic variance among the genotypes for the traits under consideration. The value of GCV was high for thousand grain weight, moderate for leaf area, effective tiller, straw yield, grain yield, panicle length and days of flowering and low for plant height, chlorophyll and fertility percent. The value of PCV was high for thousand grain weight, leaf area, effective tiller, straw yield and grain yield and moderate for panicle length, days of flowering, PH and chlorophyll and low for fertility percent. High GCV and PCV indicate that there is possibility of traits improved through selection. Low value indicates that there is need for creation of variability either by hybridization or mutation followed by selection

Plant height (0.67), leaf area (0.64), effective tiller (0.72), panicle length (0.76), days of flowering (0.95) and thousand grain weight (0.94) are highly heritable traits. Similar results were reported by Kaul and Kumar (1982); Yildirim (2006) and Mohsin et al (2009) for anthesis days, thousand grain weight, plant height, effective tillers per m² which indicates that traits under study are less influenced by environment in their expression. Chlorophyll content (0.34), straw yield (0.35) and grain yield (0.23) are moderately heritable traits whereas fertility percent (0.10) is low heritable traits.

Table 5 – Genetic variability, heritability and genetic advance

Traits	Gen-sd	Phe-sd	GCV	PCV	H	GA	GAM
plant height 90	12.59	15.31	9.02	10.97	0.68	21.28	15.25
Leaf Area	6.73	8.39	19.23	23.97	0.64	11.13	31.79
Chlorophyll content	2.53	4.30	7.37	12.52	0.35	3.07	8.94
Effective tillers	33.94	39.88	17.99	21.15	0.72	59.48	31.54
Panicle Length	2.79	3.20	11.03	12.65	0.76	5.01	19.80
Days to 50% flowering	15.06	15.41	15.8	16.26	0.95	30.30	31.97
fertility percent	2.23	6.79	2.56	7.78	0.11	1.51	1.73
1000 Grain weight	5.88	6.06	22.48	23.17	0.94	11.75	44.94
Straw Yield	839.22	1408.3	14.59	24.48	0.36	1030.1	17.91
Grain yield	582.65	1192.2	13.70	28.04	0.24	586.56	13.80

Note: Gen-sd = genotypic standard deviation, Phe-sd = phenotypic standard deviation, GCV = Genotypic coefficient of variation, PCV = Phenotypic coefficient of variation, H = Heritability, GA = genetic advance, GAM = genetic advance as percentage of mean.

Genetic advance as percent of mean was, however, highest for thousand grain weight followed by days of flowering, leaf area and effective tillers. Moderate for panicle length, straw yield, panicle height and grain yield whereas low magnitude of genetic advance as percent of mean was observed for chlorophyll content and fertility percent which indicates control of non-additive gene action on these traits and heterosis breeding will be useful. High heritability coupled with high genetic advance as percent mean was observed for thousand grain weight and days of flowering, leaf area and effective tiller which indicate the control of additive gene of action and a greater scope of selection for these 4 traits. Similar result was observed by (Bose et al., 2007) for thousand grain weight.

CONCLUSION

In terms of grain yield no variation was found among genotypes and with check variety and selection should be done based on yield attributing traits for further trials. The highest value of leaf area at 60 DAT and panicle length showed positive direct effect and also showed positive correlation with grain yield. Therefore, it should be considered for selection in breeding program. High heritability coupled with high genetic advance as percent mean was observed for thousand grain weight, days of flowering, leaf area and effective tillers per m² which indicate the control of additive gene of action and these traits can be used in further trails as there is higher expression of traits and genotypes was recreated in each generation.

ACKNOWLEDGEMENTS

Authors were grateful to National Agricultural Research Council (NARC) and IRRI for providing research materials and RD-TEC for providing technical support to carry out this research work.

CONFLICT OF INTERESTS

Authors had not declared any conflict of interest.

REFERENCES

1. Agahi, K., Fotokian, M.H. and E. Farshadfar. 2007. Correlation and path analysis of some yield related traits in rice genotypes (*Oryza sativa* L.).Asian Journal of Plant Sciences, 6 (3)513-517.
2. Bhatt, B.P., Aryal, N. Neupane, S.S. and Poudel. S. 2016.Variability, correlation and path coefficient analysis of rice (*oryza sativa* L.).International Journal of scientific and engineering research, 7 (8).
3. Bose, L. K., Das, S., Pradhan, S. K., Subudhi, H., Singh, S. & Singh, O. 2007. Genetic variability of quality characters and grain yield in lowland rice genotypes of Eastern India. Korean Journal of Breeding Science, 39, 39-44.
4. Chandra, B. S. Reddy, T.D Ansari, N.A and Kumar, S.S. 2009. Correlation and path coefficient analysis for yield and yield components in rice (*oryza sativa* L.)Agricultural science Digest. 29 (1): 45-47.
5. Gautam, D., B Kandel, B. P., Adhikari, B.B. (2018). Performance of rice genotypes in western mid hill of Nepal. J. Plant Breed. Genet. 06 (03) 2018. 111-116.
6. Falconer, D.S., and Mackay, T.F.C. (1996) An Introduction to Quantitative Genetics.4th ed., Prentice Hall, London.
7. Hairmansis, A., B. Kustianto, F. Supartopo and S. Suwarna. 2010. Correlation analysis of agronomic characters and grain yield of rice tidal swamp area. Indonesian Journal of Agricultural Science. 11 (1):11-15.
8. International Rice Research Institute (IRRI). 2017. Website at <http://www.irri.org>
9. Johnson, H.W., Robinson, H.F., & Cornstock, R.E. (1955) Estimates of environmental variability in soybeans. Agronomy Journal, 47, 314-318.

10. Karim, D., Md. N.E.A. Siddique, U. Sarkar, Md. Z. Hasnat and Sultan. J. 2014. Phenotypic and genotypic correlation coefficient of quantitative characters and character association of aromatic rice. *Journal of Bioscience and Agriculture Research*, 1 (1):34-46.
11. Kole, P.C. and Hasib. K.M. 2008. Correlation and regression analysis in scented rice. *Madras Agriculture Journal*, 95 (1-6): 178-182.
12. Konate, K.A., A. Zongo., H. Kam and A. Andebert. 2016. Genetic variability and correlation analysis of rice (*Oryza sativa* L.) inbred lines based on agro-morphological traits. *African Journal of Agricultural Research*, 11 (35):3340-3346.
13. Lush, J.L. 1940 Inter-size correlation regression of offspring on diary as a method of estimating heritability of characters. *Proceedings American Society of Animal Production*, 33, 293-301.
14. Madhavilatha, L., M. Reddi sekhar, Y. Suneetha and T. Srinivas. 2005. Genetic variability, correlation and path analysis for yield and quality traits in rice (*Oryza sativa* L.). *Research on crops*, 6 (3): 527- 534.
15. Marasis, O. P. D. 1980. Adaptability, stability performance and phenotypic, genotypic and environmental correlation in varieties and line of rice. Ph. D. thesis. *Universidade Federal Viçosa, Brazil*, pp.1 70.
16. MoAD, (2015/16). *Statistical Information On Nepalese Agriculture 2015/16*. Singh Durbar, Ktm Nep: Ministry Of Agriculture and Development, Agribusiness Promotion and Statistics Division.
17. Robinson, H.F., Cornstock, R.E., & Harvey, P.H.1949. Estimates of heritability and degree of dominance in corn. *Agronomy Journal*, 41, 353-359.
18. Surek, H. and Beser, N. 2003. Correlation and path coefficient analysis for some yield related traits in rice under the rice conditions *Turkish J. Agriculture and Forestry*. 27 (2): 77-83.
19. Sivasubramanian, S., & Menon, M. 1973. Heterosis and inbreeding depression in rice. *Advances in Agronomy*, 47, 85-140.
20. Sowmiya, C.A. and M. Venkatesan. 2017. Studies on Correlation and Path Coefficient Analysis in Rice (*Oryza Sativa* L.). *Int. J. Curr. Microbiol. App. Sci* 6 (9): 1757-1763.doi: <https://doi.org/10.20546/ijcmas.2017.609.217>.

DOI 10.18551/rjoas.2019-08.31

ANALYSIS OF DETERMINANT PERFORMANCE OF AGRICULTURAL EXTENSION AGENTS IN LEBAK DISTRICT, BANTEN PROVINCE OF INDONESIA

Herpriyana Martin, Student
Graduate Program, Sebelas Maret University, Indonesia

Suwarto, Anantanyu Sapja, Teaching Staff
Sebelas Maret University, Indonesia

*E-mail: martin.herpriyana@gmail.com

ABSTRACT

The purpose of this study was to find out the determinants of the performance of agricultural extension agents in Lebak District and to analyze the determinants of the performance of Agricultural Extension agents in Lebak District. Determination of the research location was deliberately chosen purpose sampling based on certain considerations. The population unit in this study was 117 agricultural extension agents in Lebak District. The sampling technique used is census. The research variables included the characteristics of the agricultural extension agents (X1), competency of agricultural extension agents (X2), training (X3), and the performance of the agricultural extension agents (Y). Data analysis techniques include descriptive statistical analysis to describe research data, path analysis to predict the effect of independent variables on the dependent variable, and to determine the direct and indirect effects of variables. The results of the descriptive statistical analysis in general the performance of agricultural extension agents in Lebak District are in the high category. This is indicated by the high performance of agricultural extension agents in two sub-variables, namely: extension planning sub-variables, and evaluation and reporting sub-variables. The performance aspects of agricultural extension agents are in the low category, namely: the implementation of agricultural extension agents' activities. The results of path analysis show that the characteristics of agricultural extension agents, competency of agricultural extension agents, and training have an effect on the performance of agricultural extension agents together at 64.2 percent. The most influential factor on the performance of agricultural extension agents is training.

KEY WORDS

Agriculture, extension, performance, characteristics, competency, training.

The government is obliged to organize agricultural, fisheries and forestry counseling. This shows that agricultural extension has a strategic role in development in Indonesia. Indonesia has long been known as an agricultural country. This is because Indonesia has a land area and agro-climate which is very potential to be developed as an agricultural business. Based on agricultural land statistics (Ministry of Agriculture, 2017) in 2016 there were around 36,764,318.50 Ha which is the area of agricultural land in Indonesia. The population aged 15 years and over whom worked in the agricultural sector in August 2016 amounted to 37,770,165 workers, which means around 31.90% of the total workforce of 118,411,973 workers (BPS, 2017).

Agricultural development is very much determined by human resources in it. If human resources have high motivation, creativity and are able to develop innovation, then agricultural development can certainly be better. One of the human resources that plays a role in implementing government programs in efforts to develop agriculture is agricultural extension agents.

The agricultural extension agents' performance can show the extent of the agricultural extension agents' competence in carrying out tasks such as providing information about cultivation techniques, government policies, access to markets and capital, and other

information needed by farmers. The performance of agricultural extension agents can be a reference for the government in determining policies including the provision of funds for the development of the agricultural sector as well as for increasing the competence of agricultural extension agents. One of the challenges faced by agricultural extension in Lebak District is the number of extension agents who are still far from the ideality of one village of one agricultural extension agents, namely from 345 villages and urban villages, only 128 extension agents who assist farmers. According to Gibson (1996), there are three factors that influence individual performance, namely: individual, psychological and organizational factors. Individual factors that influence individual performance, namely: ability, skills, family background, work experience, social level and demography. Psychological factors, namely: perception, role, attitude, personality, motivation and job satisfaction. Organizational factors, namely: organizational structure, job design, leadership and reward systems. Hickerson and Middleton (1975), stated that a person's performance is determined by the ability of the three behavioral aspects, namely cognitive, affective and psychomotor. As long as there is a gap between the performance of the officer and the performance demanded by his position, the officer cannot perform well in completing his main tasks.

The purpose of this study was to determine the level of performance of agricultural extension agents in Lebak District and to analyze the factors that influence the performance of Agricultural Extension agents in Lebak District. In this study an assessment of the level of performance (Y) was carried out and an analysis of the determinants or factors influencing the performance of agricultural extension agents including the characteristics of agricultural extension agents (X1), competency of agricultural extension agents (X2), and training (X3).

METHODS OF RESEARCH

This type of research is survey research. Determination of the research location was deliberately chosen "purpose sampling" based on certain considerations. The population units in this study were 117 agricultural extension agents PNS, THL-TBPP, and TTK in Lebak District. The respondents' taking technique used was census, so the respondents in this study were all population units. Lebak District was chosen as a research site because Lebak District is one of the Regencies which is included in the criteria of underdeveloped areas in Banten Province which is close to the capital city of Indonesia, namely DKI Jakarta. Because of that status, the local government tried to get Lebak District out of the predicate of a disadvantaged region. Government efforts rely on the agricultural sector because agriculture is the highest economic support sector of Lebak District, especially in terms of employment and community income. The ease of access to big cities such as Jakarta, Bogor, Serang, Tangerang, and Cilegon where Merak Harbor is located is a distinct advantage for Lebak District which is recorded as the region that has the most agricultural workers in Banten Province. The independent variables in this study were the characteristics of agricultural extension agents which included age, period of work, use of the media, availability of facilities and infrastructure, and the level of active community participation; competency of agricultural extension agents which include managing extension activities, the ability to apply adult learning principles, communication skills, and collaboration skills; training that includes training suitability, length of training, and number of training.

The dependent variable in this study is the performance of agricultural extension agents which includes extension planning, implementation of extension activities, and evaluation and reporting. Data collection techniques in this study are interviews, observation, and recording. The data analysis method used in this study is validity test using product moments Pearson, reliability test by looking at Cronbach's alpha coefficient, descriptive statistical analysis, and then analysis of research data using path analysis.

RESULTS AND DISCUSSION

The results of the study with descriptive statistical analysis techniques in general the performance of agricultural extension agents (Y) in Lebak District are in the high category of

55.6%. The sub-variables of the agricultural extension agents performance are two sub-variables in the high criteria which are at the median value of 3 (three) and one sub-variable in the low criterion which is at the median value of 2 (two). Sub-variables that are at the median value of 3 (three), namely: extension planning sub-variables as much as 55.6% of respondents included in the high criteria and evaluation and reporting sub-variables at 40.2.7% of respondents are at high criteria. The sub-variables that are at the median value of 2 (two) are sub-variables for the implementation of extension activities at 47.9% of respondents are in the low criteria. This shows that most respondents have good performance in extension planning, implementation of extension activities, as well as evaluation and reporting.

The factors that influence the performance of extension agents are in the high category. This is indicated by the characteristics of agricultural extension agents (X1) in the high category (53.00%), competency of agricultural extension agents (X2) in the high category (64.00%), and training (X3) in the high category (77.7 %).

The results of simultaneous agricultural extension agents performance analysis influenced by the characteristics of agricultural extension agents, competency of agricultural extension agents, and training on the performance of agricultural extension agents are presented in the structural equation $Y = \rho YX1 + \rho YX2 + \rho YX3 + \epsilon$. To see the influence of characteristics of agricultural extension agents, competency of agricultural extension agents, and training on performance, then SPSS 25 was calculated to obtain R² (R square). Based on calculations using SPSS the results in table 1 and table 2 are as follows:

Table 1 – List of Model Y Test Calculation Results

Description	R ²	F	Sig.	α
Model Y	0,606	58,050	0,000	0,05

Based on table 1, the value of the R square is 0.606. This number states the value of the influence of the characteristics of agricultural extension agents, competency of agricultural extension agents, and training combined on performance, by calculating determinant coefficient (KD) with the KD formula = (R²) x 100% so that KD = 60.6%.

Table 2 – Value of Path Coefficients and Correlation Coefficients

No	Description	Path Coefficients (β)	Correlation Coefficients (r)	(r- β)
1.	X1 with Y	0,120	0,232*	0,112
2.	X2 with Y	0,374	0,460**	0,086
3.	X3 with Y	0,621	0,655**	0,034

Based on table 2, we can enter the path coefficient in the model Y and the error coefficient (ϵ) can be determined by the formula $\epsilon = \sqrt{1 - R^2}$ so that the value ϵ nilai $\epsilon = \sqrt{1 - 0,606} = \sqrt{0,394} = 0.628$. From the calculation results, the equation of the path test becomes $Y = 0.120X1 + 0.374X2 + 0.621X3 + 0.628$. The value obtained by 60.6% means that the influence of the characteristics of agricultural extension agents, competency of agricultural extension agents, and training on performance is 60.6%, while the remaining 39.4% is influenced by other factors that cannot be explained in this study.

To show the results of the analysis stating that the characteristics of agricultural extension agents, competency of agricultural extension agents, and training directly influence the performance is evidenced by the value of β with (r- β) provided that $\beta > (r-\beta)$ = independent variable has a direct effect (significant) and if $b < (r-\beta)$ = variable-free does not have a direct effect (not significant).

The results of the analysis in table 3 show that characteristics of agricultural extension agents directly influence performance, this is evidenced by the value of $\beta > (r-\beta)$ which is $0.120 > 0.112$. The value of the direct influence of the characteristics of agricultural extension agents on performance is indicated by the path coefficient value ($\rho YX1$). The path coefficient value ($\rho YX1$) is equal to 0.120 which means that there is a significant direct effect of the

characteristics of agricultural extension agents on performance of 1.44% (0.1202 x 100%). Sub variables that have a direct effect on performance are the period of work and the use of the media. The period of work directly influences the performance as evidenced by the value of $\beta > (r-\beta)$ which is $0.122 > 0.080$. The value of the direct effect of period of work on performance is indicated by the path coefficient value $\rho_{YX1.2}$ of 0.122, which means that there is a significant direct effect on the period of work of the performance of 1.49% (0.1222 x 100%). The research results of Bryan and Glenn (2004) show that work experience has a positive effect on new extension agents, while those who have worked longer will show the level of client satisfaction. The work experience of extension agents shows the skills in question in carrying out work, both in technical and planning terms. The availability of facilities and infrastructure directly influence the performance as evidenced by the value of $\beta > (r-\beta)$ which is $0.337 > 0.021$. The value of the direct effect of the availability of facilities and infrastructure on performance is indicated by the path coefficient value $\rho_{YX1.4}$ of 0.337, which means that there is a significant direct effect on the availability of facilities and infrastructure to the performance of 11.36% (0.3372 x 100%). This is in line with the opinion of Mardikanto (2009) that efforts to change farming delivered by extension agents to farmers are very dependent on the availability of production facilities and equipment (new) in the form of quantity, quality and the right time. If this facility is available, the success of the extension agents will be achieved.

Table 3 – Analysis of Determinants of Extension Agents

Sub Variable	r	β	(r- β)	$\beta > (r-\beta) / \beta < (r-\beta)$	Information
Age (X1.1)	0,136	0,030	0,106	0,030 < 0,106	not significant
Period of work (X1.2)	0,202	0,122	0,080	0,122 > 0,080	significant
Use of the media (X1.3)	-0,007	-0,067	0,060	-0,067 < 0,060	not significant
Availability of facilities and infrastructure (X1.4)	0,358	0,337	0,021	0,337 > 0,021	significant
Level of active community participation(X1.5)	0,211	0,010	0,201	0,010 < 0,201	not significant
Managing extension activities (X2.1)	-0,070	0,089	0,019	-0,089 < 0,019	not significant
Ability to apply adult learning principles (X2.2)	0,229	0,164	0,065	0,164 > 0,065	significant
Communication skills (X2.3)	0,251	0,301	-0,050	0,301 > -0,050	significant
Collaboration skills (X2.4)	-0,171	-0,294	0,123	-0,294 < 0,123	not significant
Training suitability (X3.1)	0,453	0,303	0,015	0,303 > 0,015	significant
Length of training (X3.2)	0,422	0,221	0,201	0,221 > 0,201	significant
Number of training (X3.3)	0,286	0,128	0,158	0,128 < 0,158	not significant

Age sub-variables did not significantly influence the performance of agricultural extension agents. This is in accordance with Robbins (1996) that a person's age is closely related to performance; the reason that reinforces this expression is that a person's productivity will decline with age. Speed, dexterity, strength and coordination deteriorate with the passage of time. Tedious work and lack of intellectual stimulation will also reduce productivity. Sub-variables use of the media has no significant effect on the performance of agricultural extension agents. This condition can be caused because the implementation of extension is usually carried out in the field such as farmers' land and fields so that the use of media such as electronic media, print media, and visual media is not too often due to the condition of the location of the extension. The level of active community participation has no significant effect on the performance of agricultural extension agents. The performance of agricultural extension agents is said to be good if the existence and activities or programs that are conveyed always receive the support and active participation of the entire community. This is in line with the opinion of Sumardjo (2010) that if people have been willing to act towards improving the lives of themselves, their families and communities then it can be said that the people have participated in development. The level of active community participation has no significant effect on the performance of agricultural extension agents because of the low level of community participation.

The results of the analysis in table 3 show that the competency of agricultural extension agents directly influences the performance as evidenced by the value of $\beta > (r-\beta)$ which is $0.374 > 0.086$. The value of the direct influence of the competency of agricultural extension agents on performance is indicated by the path coefficient value (ρ_{YX2}). The path

coefficient value (ρ_{YX2}) is equal to 0.374, which means that there is a significant direct influence of the competency of agricultural extension agents on performance of 13.99% ($0.3742 \times 100\%$). Sub-variables that directly influence performance are the ability to apply adult learning principles and communication skills. The ability to apply adult learning principles directly affects the performance as evidenced by the value of $\beta > (r-\beta)$ which is $0.164 > 0.065$. The value of the direct effect of the ability to apply adult learning principles to performance is indicated by the path coefficient value $\rho_{YX1.1}$ of 0.164, which means that there is a significant direct effect on the ability to apply adult learning principles to performance of 2.69% ($0.1642 \times 100\%$). This is because extension agents have met the criteria conveyed by Sumardjo (1999) that competence involves methodical abilities and learning techniques/developing learning experiences to influence and change knowledge/insights, skills/actions and attitudes (interests) of extension goals, arouse learning needs, realize responsibility and target needs of extension.

Communication skills directly influence the performance as evidenced by the value of $\beta > (r-\beta)$, which is $0.301 > -0.050$. The value of the direct effect of communication skills on performance is indicated by the path coefficient value $\rho_{YX1.1}$ of 0.301 which means that there is a significant direct effect of communication skills on performance at 9.06% ($0.3012 \times 100\%$). This is in accordance with what Mujiburrahmad (2014) stated that extension activities are communication activities, as professional communicators agricultural extension agents must first know, master and explore information (messages) that will be conveyed to the target community. Extension agents must have extensive knowledge about development information, science, technology that will be delivered to the target community. This competency must be equipped with the ability of the methods, methods, and techniques to convey it so as to achieve maximum results. Extension agents should master the concept of communication and ways of communicating.

The sub-variable for the managing extension activities did not have a significant effect on the performance of agricultural extension agents because managing extension activities was more directed towards mere routines. Managing extension activities should be like what Mulyasa (2002) said that competence is a combination of knowledge, attitudes and values, and skills reflected in the habit of thinking and acting. Sub-variables collaboration skills has no significant effect on the performance of agricultural extension agents because extension agents have not been able to do what Mardikanto (2009) said that communication in extension is a tool to cause changes in extension. In general, communication is defined as a process of delivering messages from the source to the recipient, in practice communication is not only limited to the message that has been delivered or received by the recipient of the message, but the recipient is expected to give a response to the source or sender for later communication continues.

The results of the analysis in table 3 show that training directly affects the performance of agricultural extension agents as evidenced by the value of $\beta > (r-\beta)$ which is $0.621 > 0.034$. The value of the direct effect of training on performance is indicated by the path coefficient value (ρ_{YX3}). The path coefficient value (ρ_{YX3}) is 0.621 which means that there is a significant direct effect of training on performance of 38.56% ($0.6212 \times 100\%$). Sub-variables that have a direct effect on performance are the training suitability and the length of training. The training suitability directly affects the performance as evidenced by the value of $\beta > (r-\beta)$ which is $0.303 > 0.015$. The direct effect of training suitability on performance is indicated by the path coefficient value $\rho_{YX3.1}$ of 0.303, which means that there is a significant direct effect of training suitability on performance of 9.18% ($0.3032 \times 100\%$). This shows that the training conducted by extension agents is in accordance with what was stated by Sikula in Sumantri (2000) that training is a short-term educational process that uses systematic and organized methods and procedures. The length of the training directly affects the performance as evidenced by the value of $\beta > (r-\beta)$ which is $0.221 > 0.201$. The amount of direct effect of training duration on performance is indicated by the path coefficient value $\rho_{YX3.2}$ of 0.221, which means that there is a significant direct effect on the duration of training on performance of 4.88% ($0.2212 \times 100\%$). The sub-variable number of training did not significantly influence the performance of agricultural extension agents. This is because

training is sometimes not carried out by training needs analysis to find out whether there is a training need and if there is indeed, what training needs are needed to fill the gaps, when it is not carried out, the training does not answer the description, extension agents were not able to do what Gomes (1995) said that training was every effort to improve work performance in a particular job that was his responsibility. Ideally, training should be designed to realize organizational goals, which at the same time also realize the goals of individual agents.

CONCLUSION

Based on the results of descriptive statistical analysis, a conclusion can be drawn, namely that in general the performance of agricultural extension agents (Y) in Lebak District is in the high category of 55.6%. The high performance of agricultural extension agents in two sub-variables, namely: extension planning sub-variables and evaluation and reporting sub-variables. Based on the results of the path test analysis showing the characteristics of the agricultural extension agents, competency of agricultural extension agents, and training have an effect on jointly on the performance of agricultural extension agents by 60.6%. The most influential factor on the performance of agricultural extension agents was training at 38.56%. Sub variables that have a significant effect on the performance of agricultural extension agents are period of work, availability of facilities and infrastructure, ability to apply adult learning principles, communication skills, training suitability, and length of training. Sub-variables that did not significantly influence the performance of agricultural extension agents were age, use of the media, level of active community participation, managing extension activities, collaboration skills and the number of training.

REFERENCES

1. Badan Pusat Statistik. 2017. Keadaan Angkatan Kerja di Indonesia Agustus 2017. Jakarta: Badan Pusat Statistik.
2. Bryan, D.T., Glenn, D.I. 2004. Agent Performance and Customer Satisfaction. *Jurnal of Extension*. Number 6 Volume 42 Desember 2004.
3. Gibson, I. 1996. *Organisasi and Manajemen*. Jakarta: Erlangga.
4. Gomes, F.C. 1995. *Manajemen Sumber Daya Manusia*. Yogyakarta: Andi Offset.
5. Hickerson, F.J. and Middleton, John. 1975. *Helping People Learn: A Module for Training Trainers*. Honolulu-Hawaii: East-West Communication Institut.
6. Kementerian Pertanian. 2017. *Statistik Lahan Pertanian 2012-2016*. Jakarta: Pusat Data and Sistem Informasi Pertanian. Sekretariat Jenderal Kementerian Pertanian.
7. Mardikanto, Totok. 2009. *Sistem Penyuluhan Pertanian*. Surakarta; Sebelas Maret University Press.
8. Mujiburrahmad. 2014. *Kinerja Penyuluh Pertanian di Kabupaten Pidie Provinsi Aceh*. Bogor: Institut Pertanian Bogor.
9. Mulyasa, 2002. *Kurikulum Berbasis Kompetensi. Konsep, Karakteristik, and Implementasi*. Bandung. Remaja Rosdakarya.
10. Robbins, Stephen. P. 1996. *Perilaku Organisasi*. Edisi bahasa Indonesia Jilid 1. Jakarta: Prenhallindo.
11. Sumantri, S. 2000. *Pelatihan and Pengembangan Sumber Daya Manusia*. Bandung: Fakultas Psikologi Unpad.
12. Sumardjo. 1999. *Transformasi Model Penyuluhan Pertanian Menuju Pengembangan Kemandirian Petani (Kasus di Provinsi Jawa Barat)*. Bogor: Institut Pertanian Bogor.
13. 2010. *Penyuluhan Menuju Pengembangan Kapital Manusia and Kapital Sosial Dalam Mewujudkan Kesejahteraan Rakyat*. Orasi Ilmiah Guru Besar Dalam Rangka Dies Natalis IPB ke-47. Bogor. Institut Pertanian Bogor.

DOI 10.18551/rjoas.2019-08.32

THE EFFECT OF COMPOST COMBINED WITH PHOSPHATE SOLUBILIZING BACTERIA AND NITROGEN-FIXING BACTERIA FOR INCREASING THE GROWTH AND YIELD OF CHILI PLANTS

Hayati Nur*

Faculty of Agriculture, University of Tadulako & Postgraduate Program,
Faculty of Agriculture, University of Brawijaya, Indonesia

Sudiarso, Prijono Sugeng, Aini Nurul

Faculty of Agriculture, University of Brawijaya, Indonesia

*E-mail: nur.hayatirais@yahoo.com

ABSTRACT

The effect of compost combined with phosphate solubilizing bacteria and nitrogen-fixing bacteria on chili plants has been investigated in an experiment using polybag. This research aims to examine the roles of phosphate solubilizing bacteria, nitrogen-fixing bacteria, and compost in increasing the growth and yield of chili plants. This research used a randomized block design with a two-factor factorial design consisting of R0: without Microbes, R1: Nitrogen-Fixing Bacteria (NFB), R2: Phosphate solubilizing bacteria + nitrogen-fixing bacteria (PSB + NFB). The second factor was a dose of organic fertilizer (compost), consisting of 4 dose levels, i.e.: P0: Control (Urea, SP-36, KCl), P1: 15 t ha⁻¹ compost, P2: 20 t ha⁻¹ compost, P3: 25 t ha⁻¹ compost. The research results showed that the use of compost at a dose of 20 t ha⁻¹ added by PSB and NFB significantly increased the growth (number of branches, number of leaves, leaf area, chlorophyll content, plant dry weight) and yield (number of fruits, weight of fruits) of chili plants. The average number of chili fruits increased from 37 fruits per plant to 78 fruits per plant.

KEY WORDS

Compost, phosphate solubilizing bacteria, nitrogen-fixing bacteria, chili.

Increase in population and the growing number of industries requiring chili raw materials causes the need for chili to increase every year. Agricultural statistics data in 2018 noted that harvested area and national chili productivity increased, but chili productivity was still far below its production potential. National harvested area of chili was 120,847 ha with the productivity of 8.65 t ha⁻¹ in 2015 and was 123,404 ha with the productivity of 8.47 t ha⁻¹ in 2016. Chili harvested area in Central Sulawesi was 844 ha with the productivity of 6.44 t ha⁻¹ in 2015 and was 872 ha with the productivity of 5.45 t ha⁻¹ in 2016.

Low organic matter content, water availability, and nutrient availability, as well as high air temperature (average air temperature is 26-35^oC and in extreme conditions the air temperature can reach ± 37 ^oC) and low air humidity (± 65%), are factors able to influence low chili productivity in Palu Valley. As with other plants, chili plants will not provide maximum results if the environmental conditions give no supports, for example, low water and nutrient availability and poor soil structure. Therefore, efforts need to be made to improve cultivation technology that can support the growth and yield of chili plants in Palu Valley.

Benefits of organic fertilizer (compost) addition into the soil are to increase nutrients, restore soil properties through increased soil water content, soil organic carbon, cation exchange capacity (CEC) and pH, improve soil structure, aeration, and water-holding capacity, influence or regulate soil temperature, and enhance plant growth and production (Agegnehu et al. 2016; Karimuna et al. 2016; Zaman et al. 2016; Anhar et al. 2018).

METHODS OF RESEARCH

This research was conducted in Bulupountu Jaya Village, Biromaru District, Sigi Regency, Central Sulawesi Province, from November 2014 to April 2015.

This research was conducted using a Randomized Block Design (RBD) with a two-factor factorial design. The first factor was selective soil microbes (2 best treatments were chosen) obtained from phase I research, consisting of 3 levels, i.e.: R_0 : without (PSB + NFB), R_1 : Nitrogen-fixing bacteria (NFB), R_2 : Phosphate solubilizing bacteria + Nitrogen-fixing bacteria (PSB + NFB). The second factor was organic fertilizer (compost) consisting of 4 dose levels, i.e.: P_0 : Control (Urea, SP-36, KCl), P_1 : compost (15 t ha^{-1}), P_2 : compost (20 t ha^{-1}), P_3 : compost (25 t ha^{-1}). Of these two factors, 12 treatments with 3 replications were obtained, so there were 36 experimental units. Each treatment unit was represented by 8 plants in a polybag. Thus, there were 288 plants in this research.

The seeds to be sown were soaked in warm water ($\pm 50^\circ\text{C}$) for 1 hour (Sumarni et al. 2005). The immersion aimed to eliminate pests or diseases attached to the seeds and to speed up germination. The chili seeds were sown in $5 \times 8 \text{ cm}$ polybags containing mixed media (soil + sand + compost = 1: 1: 1). The seedbeds were placed in the shade and watered every day with enough water. The seeds were considered ready to be planted at 4 weeks after seedling or had 3-4 leaves. Before the seeds were transplanted, sorting was done to select healthy and uniform seeds.

After the seeds germinated and the seedlings were 4 weeks old in the seedbeds, the seedlings were transplanted to $35 \text{ cm} \times 40 \text{ cm}$ polybags containing mixed media of soil and compost (without compost, 15 t ha^{-1} , 20 t ha^{-1} , and 25 t ha^{-1}), which has been arranged according to the treatments with a polybag distance of $60 \text{ cm} \times 50 \text{ cm}$.

Inorganic fertilizer (urea, SP-36, and KCl) application was performed when the plants were 7 days old after transplanting for the control treatment (R_0P_0). Organic fertilizer (compost) application was carried out when filling polybags and adjusted to the dose of compost treatment to be tested, i.e. 15 t ha^{-1} , 20 t ha^{-1} , and 25 t ha^{-1} . Application of soil microbes was conducted on chili plants by applying 15 ml of soil microbial isolates namely phosphate solubilizing bacteria (*Bacillus subtilis* and *Pseudomonas fluorescens*) and nitrogen-fixing bacteria (*Azotobacter sp.*) or according to the treatments on 25 g of compost as a carrier medium. Each polybag was given 25 g of compost applied with soil microbes (bio-compost) and given at planting.

The first chili harvest was done at the age of 80 days after planting, gradually with 4 days harvest intervals. Chili fruits were harvested after the fruits had a $\geq 80 - 100\%$ red color.

To determine the effect of the treatment given, observations were conducted on plant growth and yield. Components observed were growth component, yield component, and soil microbial analysis.

1. Growth component consisting of: number of branches, number of leaves, leaf area, plant dry weight, and leaf chlorophyll content;
2. Yield component consisting of: flowering speed, number of fruits, and weight of fruits per plant;
3. Soil microbial analysis.

Observation data were analyzed by the F test. In terms of significant differences between treatments, the results were further tested using Tukey's Honestly Significant Difference (HSD) test at 5%.

RESULTS OF STUDY

The results of HSD test at an α of 0.05 on the number of branches (Table 1) show that the R_1P_2 (NFB + 20 t ha^{-1} compost) treatment had the highest average number of branches of 17 branches. It was significantly different from other treatments but not significantly different from the R_1P_3 , R_2P_2 , and R_2P_3 treatments.

Table 1 – Responses of Chili Plant Growth to phosphate solubilizing bacteria, nitrogen-fixing bacteria, and compost application

Treatment	Number of branches	Number of leaves	Leaf area (cm ² plant ⁻¹)	Leaf chlorophyll content (SPAD unit)	Dry weight (g plant ⁻¹)
R ₀ P ₀	6 ^a	42 ^a	380.80 ^a	55.90 ^a	7.03 ^a
R ₀ P ₁	8 ^{abc}	51 ^b	565.00 ^b	61.80 ^{bc}	8.13 ^a
R ₀ P ₂	11 ^{cd}	56 ^{cd}	753.01 ^{cd}	67.20 ^{def}	7.67 ^a
R ₀ P ₃	10 ^{bc}	56 ^{cd}	776.74 ^{cd}	66.06 ^{cde}	8.55 ^{ab}
R ₁ P ₀	7 ^{ab}	49 ^b	424.88 ^a	60.90 ^{ab}	7.79 ^a
R ₁ P ₁	8 ^{abc}	56 ^{cd}	688.15 ^c	71.43 ^{tgh}	7.37 ^a
R ₁ P ₂	17 ^f	66 ^f	930.22 ^{ef}	74.13 ^h	10.97 ^{bc}
R ₁ P ₃	14 ^{ef}	62 ^{ef}	911.25 ^{ef}	69.33 ^{deigh}	11.91 ^{cd}
R ₂ P ₀	9 ^{bc}	53 ^{bc}	554.31 ^b	64.33 ^{bcd}	9.05 ^{ab}
R ₂ P ₁	13 ^{de}	60 ^{de}	818.82 ^{de}	68.83 ^{deig}	10.77 ^{bc}
R ₂ P ₂	16 ^{ef}	66 ^f	994.87 ^f	72.33 ^{gh}	13.97 ^d
R ₂ P ₃	16 ^{ef}	62 ^{ef}	839.38 ^{de}	70.13 ^{etgh}	13.46 ^d

Numbers followed by different letters in the same column indicate differences in the HSD test level at an α of 0.05 between treatment combinations of R₀ = Without soil microbes, R₁ = application of NFB, R₂ = application of PSB + NFB, P₀ = Without compost, P₁ = Compost dose of 15 t ha⁻¹, P₂ = Compost dose of 20 t ha⁻¹, P₃ = Compost dose of 25 t ha⁻¹.

Table 1 also shows that the R₁P₂ (NFB + 20 t ha⁻¹ compost) and R₂P₂ (PSB + NFB + 20 t ha⁻¹ compost) treatments had the same highest average number of leaves of 66 leaves. It was significantly different from other treatments but not significantly different from the R₁P₃ and R₂P₃ treatments. Likewise, on the observation of leaf area, the R₂P₂ treatment showed the highest average leaf area of 994.87 cm² plant⁻¹. It was significantly different from other treatments but not significantly different from the R₁P₂ and R₁P₃ treatments.

The results of HSD test at an α of 0.05 on plant dry weight (Table 1) show that the R₂P₂ treatment had the highest average plant dry weight of 5.36 g. It was significantly different from other treatments but not significantly different from the R₀P₂ treatment. This illustrates that the soil microbial activity (PSB + NFB) applied will increase by 20 t ha⁻¹ compost application. Thus, the treatment can fulfill nutrient needs in chili plants. Additionally, the highest average chlorophyll content was obtained from the R₁P₂ (74.13 SPAD units) treatment and the lowest average chlorophyll content was obtained from the R₀P₀ (55.90 SPAD units) treatment.

Figure 1 shows that there was a tendency for a faster flowering speed of chili plants reaching 50%, i.e. 26 days after transplanting in the R₁P₂ (NFB + 20 t ha⁻¹ compost), R₂P₂ (PSB + NFB + 20 t ha⁻¹ compost), and R₁P₃ (NFB + 20 t ha⁻¹ compost) treatments.

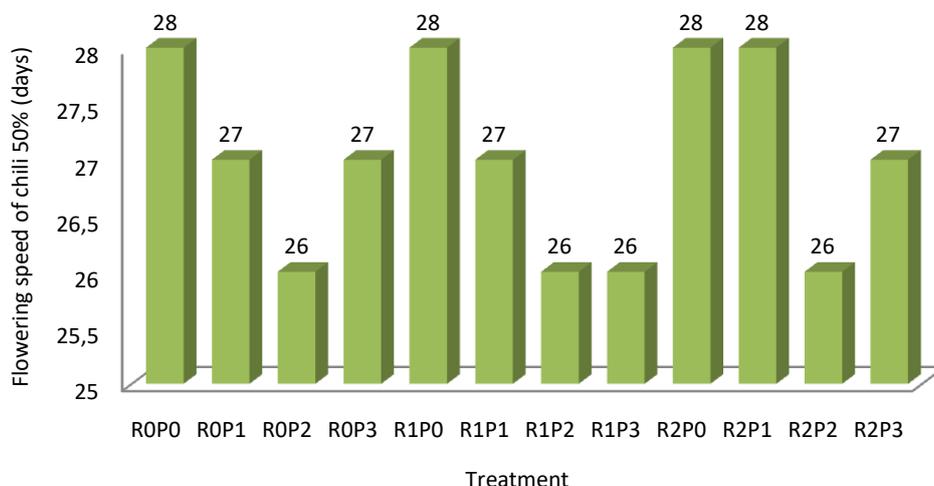


Figure 1 – Average Flowering Speed of Chili Plants (50%)

The results of HSD test at α of 0.05 on the number of fruits of chili plants (Table 2) show that the R₂P₂ (PSB + NFB + 20 t ha⁻¹ compost) treatment had the highest average number of fruits of 78 fruits (1st - 10th harvest). It was significantly different from other treatments.

Table 2 – Responses of Chili Plant Yield to phosphate solubilizing bacteria, nitrogen-fixing bacteria, and compost application

Treatment	Number of fruits (fruit plant ⁻¹)	Weight of fruits (g plant ⁻¹)
R ₀ P ₀	52 ^{cd}	106.19 ^{ab}
R ₀ P ₁	54 ^{cd}	130.62 ^c
R ₀ P ₂	44 ^{ab}	107.46 ^{ab}
R ₀ P ₃	53 ^{cd}	129.78 ^{bc}
R ₁ P ₀	37 ^a	100.75 ^a
R ₁ P ₁	49 ^{bc}	128.85 ^{bc}
R ₁ P ₂	63 ^{ef}	170.02 ^d
R ₁ P ₃	67 ^f	194.16 ^e
R ₂ P ₀	57 ^{de}	116.77 ^{abc}
R ₂ P ₁	53 ^{cd}	128.96 ^{bc}
R ₂ P ₂	78 ^g	206.59 ^e
R ₂ P ₃	65 ^f	163.22 ^d

Numbers followed by different letters in the same column indicate differences in the HSD test level at an α of 0.05 between treatment combinations of R₀ = Without soil microbes, R₁ = application of NFB, R₂ = application of PSB + NFB, P₀ = Without compost, P₁ = Compost dose of 15 t ha⁻¹, P₂ = Compost dose of 20 t ha⁻¹, P₃ = Compost dose of 25 t ha⁻¹.

The highest average weight of chili fruits per plant (Table 2) was found in the R₂P₂ (PSB+NFB + 20 t ha⁻¹ compost) treatment of 206.59 g. It was significantly different from other treatments but not significantly different from the R₁P₃ treatment. The lowest weight of chili fruits was obtained in the R₁P₀ (NFB + without compost) treatment combination.

Figure 2 shows that the highest average number of harvested chili fruits was found in the 6th harvest of the R₂P₂ treatment of 16 fruits, followed by the 7th harvest of the R₁P₃ treatment of 13 fruits, and the 7th harvest of the R₂P₃ treatment of 12 fruits, respectively.

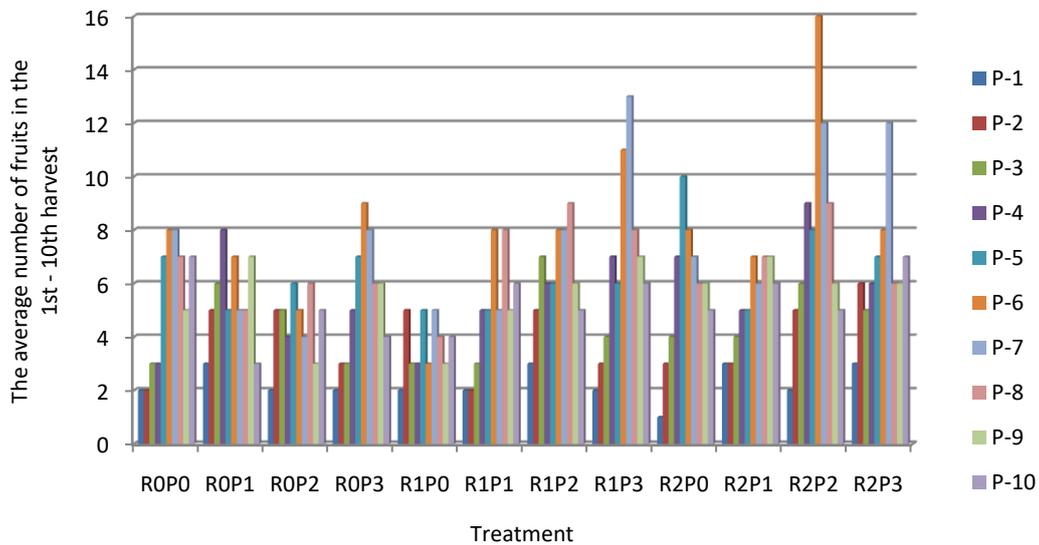


Figure 2 – Average Number of Fruits of Chili Plants in the 1st - 10th Harvest

Soil microbial analysis results on the soil used in this research indicated that selective soil microbial treatment and compost doses caused an increase in the total soil microbial population before and after treatment.

Table 3 – Soil Microbial Populations Before and After Treatment

Treatment	N-fixing bacteria population (CFU ml ⁻¹)		Phosphate solubilizing bacteria population (CFU ml ⁻¹)	
	Before treatment	After treatment	Before treatment	After treatment
R ₀ P ₀	1.12x10 ⁷	1.34 x 10 ⁷	6.07x10 ⁴	11.30x10 ⁴
R ₀ P ₁	1.12x10 ⁷	5.36 x 10 ⁷	6.07x10 ⁴	15.00x10 ⁴
R ₀ P ₂	1.12x10 ⁷	5.13 x 10 ⁷	6.07x10 ⁴	14.30x10 ⁴
R ₀ P ₃	1.12x10 ⁷	2.23 x 10 ⁷	6.07x10 ⁴	10.20x10 ⁴
R ₁ P ₀	1.12x10 ⁷	3.68 x 10 ⁷	6.07x10 ⁴	15.40x10 ⁴
R ₁ P ₁	1.12x10 ⁷	4.69 x 10 ⁷	6.07x10 ⁴	11.90x10 ⁴
R ₁ P ₂	1.12x10 ⁷	11.90 x 10 ⁷	6.07x10 ⁴	14.40x10 ⁴
R ₁ P ₃	1.12x10 ⁷	6.81 x 10 ⁷	6.07x10 ⁴	10.20x10 ⁴
R ₂ P ₀	1.12x10 ⁷	4.80 x 10 ⁷	6.07x10 ⁴	14.20x10 ⁴
R ₂ P ₁	1.12x10 ⁷	8.26 x 10 ⁷	6.07x10 ⁴	23.20x10 ⁴
R ₂ P ₂	1.12x10 ⁷	11.40 x 10 ⁷	6.07x10 ⁴	15.60x10 ⁴
R ₂ P ₃	1.12x10 ⁷	4.35 x 10 ⁷	6.07x10 ⁴	14.40x10 ⁴

R₀ = no (PSB + NFB), R₁ = application of NFB, R₂ = application of PSB + NFB, P₀ = without compost, P₁ = 15 t ha⁻¹ compost, P₂ = 20 t ha⁻¹ compost, P₃ = 25 t ha⁻¹ compost.

Table 3 shows that the highest total microbial population was found in the R₁P₂ (NFB + 20 t ha⁻¹ compost) treatment, followed by the R₂P₂ (PSB + NFB + 20 t ha⁻¹ compost) treatment, the R₂P₁ (PSB + NFB + 15 t ha⁻¹ compost) treatment, and the R₁P₃ (NFB + 25 t ha⁻¹ compost) treatment respectively.

DISCUSSION OF RESULTS

The growth and yield of chili plants are strongly influenced by the role of organic matter (compost) in increasing applied selective soil microbial activity. Application of 20 t ha⁻¹ compost combined with phosphate solubilizing bacteria and nitrogen-fixing bacteria application can increase the growth and yield of chili plants. Besides being able to increase nutrients in the soil, organic matter or compost can also increase microorganism activity, enhance humus levels, and improve soil structure (Frimpong et al. 2017; Agbede et al. 2017).

At the beginning of growth, the effect of compost and selective soil microbial application was not evident in all observation variables. It was probably due to shoot dominance at the beginning of growth, causing the branching of chili plants at the beginning of growth to not indirectly form intensively. According to Taiz and Zeiger (2002), apical dominance can inhibit lateral bud growth. Thus, the increase in number of branches at the beginning of growth will also be inhibited.

Increase in branch formation has a significant effect on the increase in number of leaves, leaf area, and plant dry weight. Increase in number of leaves and leaf area will influence photosynthesis process occurring in chloroplasts inside the leaves. Plant dry weight in the form of total biomass is a manifestation of metabolic processes occurring in the plant's body, in which dry weight can indicate plant productivity because 90% of photosynthesis results are in plant dry weight (Gardner et al. 1991).

The treatment of nitrogen-fixing bacteria and phosphate solubilizing bacteria application combined with 20 t ha⁻¹ compost application in this research was not only able to increase plant growth, but also increase chili plant yield. Table 2 shows that the highest number of fruits and weight of fruits of chili plants were obtained in the treatment of nitrogen-fixing bacteria and phosphate solubilizing bacteria application combined with 20 t ha⁻¹ compost application. It is supported by Wiguna's statement (2011) that one way to increase the production of red chili plants is by using environmentally friendly fertilization such as bio-fertilizers and organic fertilizers (Elekhtyar et al. 2017; Frimpong et al. 2017). Organic fertilizers and bio-fertilizers with various processes support each other in fertilizing the soil and at the same time conserving and nourishing soil ecosystems as well as avoiding the possibility of environmental pollution. In addition to increasing nutrient content in the soil, organic fertilizers also contain a number of growth-regulating substances and vitamins needed to stimulate plant growth and microorganisms (Khan et al. 2017; Coa et al. 2017).

These research results also showed that 20 t ha⁻¹ compost application can increase soil microbial population (Table 3). It is in line with Pranoto et al.' (2015) research stating that organic matter has a positive effect on the increase in *Azotobacter sp* population. Thus, it can be interpreted that 20 t ha⁻¹ compost application will influence the increase in microorganism activity (phosphate solubilizing bacteria and nitrogen-fixing bacteria) in the soil so that nutrient availability in the soil, especially the N and P elements, will also increase (Xiaohou et al. 2008; Hernández et al. 2014; Barajas-Aceves 2016).

CONCLUSION

The use of compost at a dose of 20 t ha⁻¹ combined with the PSB and NFB application significantly increased the growth and yield of chili plants. Soil microbial analysis results showed that nitrogen-fixing bacteria increased from 1.12 x 10⁷ CFU ml⁻¹ to 8.26 x 10⁷ CFU ml⁻¹ and phosphate solubilizing bacteria increased from 6.07 x 10⁴ CFU ml⁻¹ to 23.20 x 10⁴ CFU ml⁻¹. Additionally, the average number of chili fruits increased from 37 fruits per plant to 78 fruits per plant.

REFERENCES

1. Agbede TM, Adekiya AO, Eifediyi EK, 2017. Impact of poultry manure and NPK Fertilizer on soil physical properties and growth and yield of carrot. *J Hort Res.* 25: 81–88
2. Agegnehu G, Nelson P, Bird M, 2016. Crop yield, plant nutrient uptake and soil physicochemical properties under organic soil amendments and nitrogen fertilization on nitisols. *Soil Tillage Res.* 160: 1–13
3. Anhar A, Junialdi R, Zein A., 2018. Growth and tomato nutrition content with Bandotan (*Ageratum Conyzoides* L) bokashi applied. *IOP Conf Ser Mater Sci Eng.* Vol 335.
4. Barajas-Aceves M, 2016. Organic waste as fertilizer in semiarid soils and restoration in mine sites. In: *organic fertilizers-from basic concepts to applied outcomes.* InTech. 243-271 p.
5. Cao Y, Ma Y, Guo D, Wang Q, Wang G, 2017. Chemical properties and microbial responses to biochar and compost amendments in to soil under continuous watermelon cropping. *Plant Soil Environ.* 63(1):1-7.
6. Elekhtyar NM, Mikhael BB, Wissa MT, 2017. Utilization of compost and compost tea for improving egyptian hybrid rice one cultivar. *J.Sus.Agric.Sci.* 43 (3): pp.141- 149.
7. Frimpong K.A, 2017. Influence of Compost on Incidence and Severity of Okra Mosaic Disease and Fruit Yield and Quality of Two Okra (*Abelmoschus esculentus* L. Moench) Cultivars. *International Journal of Plant & Soil Science.* 16(1): 1-14.
8. Hernández MIS, Gómez-Álvarez R, Rivera-Cruz M del C, Cruz R, Álvarez-Solís JD, Pat-Fernández JM, 2014. The influence of organic fertilizers on the chemical properties of soil and the production of *Alpinia purpurata*. *Cienc e Investig Agrar.* 41:215–224.
9. Karimuna L, Rahni NM, Boer D, 2016. The use of bokashi to enhance agricultural productivity of marginal soils in Southeast Sulawesi, Indonesia. *J Trop Crop Sci.* 3: 1-6.
10. Khan A.A, H. Bibi, Z. Ali, M. Syarif, S.A. Syah, H.Ibadullah, K. Khan, I. Azem and S.Ali, 2017. : Effect of compost and inorganic fertilizers on yield and quality of tomato. *Academia Journal of Agricultural Research* 5(10): 287-293
11. Pranoto E., S. Pratiwi. H.Wahyuni dan S. Anindita 2015. Pola Sebaran *Azotobacter sp.* dan Bahan Organik pada Berbagai Kelas Kemiringan Lereng Perkebunan Teh Dataran Tinggi PPTK Gambung. *J.Biospecies* 8(1):33-41
12. Sumarni, N., A. Hidayat, dan E. Sumiati 2006. Pengaruh Tanaman Penutup Tanah dan Mulsa Organik terhadap Produksi Cabai dan Erosi Tanah. *J. Hort.* 16(3):197-201
13. Xiaohou S, Min T, Ping J, Weiling C, 2008. Effect of EM Bokashi application on control of secondary soil salinization. *J Water Sci Eng.* 1:99–106
14. Zaman M, Ahmed M, Gogoi P, 2016. Effect of bokashi on plant growth, yield and essential oil quantity and quality in Patchouli (*Pogostemon Cablin Benth.*). *Biosci. Biotechnol. Res. Asia.* 7:383–387.

DOI 10.18551/rjoas.2019-08.33

PCR DETECTION OF COXIELLA BURNETII FROM BULL SEMEN SAMPLES USED FOR ARTIFICIAL INSEMINATION

Yatsentyuk S.P.*, Lazareva E.A., Gorbacheva N.S., Krasnikova M.S., Kozlova A.D.
Russian State Center for Animal Feed and Drug Standardization and Quality,
Moscow, Russia

Laishevtcev A.I.

Federal Scientific Centre VIEV, Moscow & Laboratory of Biological Control and Antimicrobial
Resistance of the Orel State University named after I.S. Turgenev, Orel, Russia

*E-mail: pcr-lab@vgnki.ru

ABSTRACT

444 samples of bull frozen semen used for artificial insemination from local and foreign breeding centers were investigated by PCR for the presence of DNA of *Coxiella burnetii*. *C. burnetii* DNA was detected in 32 semen samples from US and was not found in semen straws from local breeding centers and breeding centers of Netherlands and Great Britain. According to the results, it is evident that despite the restrictions and controls on the international movement of semen, bull semen is still a potential source of pathogen transmission.

KEY WORDS

Artificial insemination, *Coxiella burnetii*, bull semen, PCR.

Coxiella burnetii is an obligate intracellular parasite, a polymorphic gram-negative rod-shaped bacterium that causes human Q fever and animal coxiellosis. In animals coxiellosis is often asymptomatic. The pathogen has a tropism for reproductive organs. It plays a role in infertility of cattle and may cause metritis, abortions, prematurity of the fetus. In sick animals, the pathogen is actively released into the external environment with urine, placenta and feces [1].

Outbreaks and sporadic cases of coxiellosis are reported everywhere, especially in countries with developed livestock production. Endemic Areas are the western part of the USA, Australia, Africa, Great Britain, the Mediterranean countries, and the Central Asian republics of the former USSR. In the Russian Federation the disease is registered in more than 50 administrative units. In recent years, a significant increase in the incidence of coxiellosis has been recorded in many countries of the world. The acute form of Q fever in humans is manifested in the form of a flu-like febrile illness, SARS.

C. burnetii is very resistant to environmental influences. Low temperatures (from –4 to –70 degrees Celsius) create particularly favorable conditions for the conservation of bacteria. At the same time, the virulent properties of *C. burnetii* do not change, or, decreasing during storage, are quickly restored when passaged in laboratory animals. Even a single infective particle can initiate an infection in the animal model [2].

In the 90s, cases of the detection of *C. burnetii* in semen of seropositive bulls were described [3].

Artificial insemination (AI) is a successful technique that is used for the breeding of cattle around the world. Modern technologies for the collection of semen for AI involve deep freezing and using diluents and cryo-protectant in order to stay sperm viable. Other substances that can be added to the semen are antibiotics, and an extender, which makes it possible to use the amount of sperm for a greater number of inseminations. However, the widespread sale of doses of sperm increases the potential risk of the spread of infectious diseases.

Cell culture is still used as a sensitive tool for routine detection of *C. burnetii*, but this method is laborious and time-consuming. Isolation and handling of the Q fever agent requires rigorous compliance requirements due to pathogen can potentially be used in bioterrorism and its handling is federally regulated.

PCR is a highly sensitive and specific detection method that has been used in different countries for *C. burnetii* detection in milk, blood and animal tissue samples [4-10].

The aim of our work was to investigate the prevalence of *C. burnetii* in frozen bull semen samples of Russian origin and imported semen straws used for artificial insemination.

MATERIALS AND METHODS OF RESEARCH

Semen straws were collected from local (n=211) and foreign (Netherlands, Great Britain and the USA) (n=233) AI centers. Semen sample was diluted 1:3 in 0,9% sodium chloride. DNA was extracted from 100 mkl suspension with RIBO-prep extraction DNA/RNA kit (AmpliSens, Russia). PCR for *C. burnetii* detection was performed using LSI VetMAX™ Triplex *Coxiella burnetii* and *Chlamydomphila* spp. kit (Life Technologies Corporation, France) according to the manufacturer's instructions. All real-time PCR assays were performed on a RotorGene Q (Qiagen, Germany) real-time PCR instrument. Positive samples were re-tested using conventional PCR with primers *cocF* and *cocR* [10], which amplifies the 16S rRNA gene of *C. burnetii*. The amplification was performed in a total volume of 25 µL containing 10 mkl of DNA sample, 5 mkl PCR-mix 1 (0.2 mM dNTPs, 10 µM each primer), 10 mkl PCR-mix blue (AmpliSens, Russia). The thermal program was carried out on "Tercyc" Multi-block Thermocycler (DNA-technology, Russia) under the following conditions: 94°C for 5 min and then for 42 cycles of 94°C for 10 sec, 60°C for 10 sec, 72°C for 10 sec and a final extension at 72°C for 3 min. The PCR-amplification products were examined by electrophoresis in a 1.8% agarose gel, visualized under UV and photographed by gel documentation system. Four positive samples were confirmed by sequencing of the 16S rRNA PCR products using specific primers and the Big Dye® Terminator v1.1 Cycle Sequencing Kit on a GeneAmp PCR System 2720 PCR instrument (Applied Biosystem, USA) and ABI PRISM 3130 Genetic Analyzer automatic sequencer.

RESULTS AND DISCUSSION

We studied total 444 semen samples of bulls of different meat and dairy breeds, including 211 samples from bulls from Russian breeding centers, 233 samples from foreign breeding centers. No DNA of *C. burnetii* was found in semen samples from local breeding centers and breeding centers of Netherlands and Great Britain. In our study *C. burnetii* DNA was detected in 32 semen samples from US breeding centers. The presence of pathogen DNA was further confirmed by amplification and sequencing of the 16S rRNA gene using specific primers.

C. burnetii is widespread among domestic animals. Nevertheless, information about the pathogen transmission through the bull semen is still insufficient. Manufacturers of cryoconserved semen for AI use special media for sperm dilution and storage. They increase the volume of sperm, which is of great practical importance for the intensive use of bulls, as well as to protect sperm and support its biological properties. One of the medium often used in US breeding farms includes milk. It should be noted that it is well known about the distribution of *C. burnetii* with milk [7-9]. It was shown that *C. burnetii* was found in 1.42% of milk samples studied in Turkey [10], the frequency of *C. burnetii* in milk samples studied in Iran using different PCR assays was more than 10% [11]. *C. burnetii* was found in >94% samples of bulk tank milk from U.S. dairy herds tested during 2001-2003 [9] and 45% of composite milk samples of lactating cows tested in the U.S. in 2007 [12]. Possibly, the high frequency of DNA *C. burnetii* detection in semen samples in our study is associated with *C. burnetii* contaminated milk used in US breeding centers to dilute the sperm. But the cases of the pathogen detection in semen of seropositive bulls indicate the need for additional control of semen production used for AI.

CONCLUSION

According to the results, it is evident that despite the restrictions and controls on the international movement of semen, bull semen is still a potential source of pathogen transmission. The results of this study are limited to the PCR-based methods for detection of *C. burnetii* in the semen samples, so we cannot confirm the viability of the pathogen. In subsequent studies it is better to compare results of PCR methods for *C. burnetii* detection with results of other methods. However, our results suggest that the risk of transmitting *C. burnetii* via semen exists and that it would be valuable to test semen batches for the presence of pathogen.

REFERENCES

1. Panferova Yu.A. Molecular genetic basis of physiology and pathogenicity of *Coxiella burnetii* / *Infection and immunity*. 2012., vol. 2., No. 3., pp. 615-626.
2. Ormsbee R, Peacock M, Gerloff R, Tallent G, Wilke D. Limits of rickettsial infectivity / *Infect Immun*.1978;19:239–245.
3. Kruszewska D., Tylewska-Wierzbanowska S. Isolation of *Coxiella burnetii* from bull semen / *Research in Veterinary Science* 1997, V. 62, Issue 3, P. 299-300.
4. Lorenz H., Jäger C., Willems H., Baljer G. PCR Detection of *Coxiella burnetii* from different clinical specimens, especially bovine milk, on the basis of DNA preparation with a silica matrix / *Appl Environ Microbiol*. 1998 Nov; 64(11): 4234–4237.
5. Willems H, Thiele D, Fröhlich-Ritter R, Krauss H. Detection of *Coxiella burnetii* in cow's milk using the polymerase chain reaction (PCR) / *J Vet Med Ser B*.1994;41:580–587.
6. S. R. Klee, J. Tyczka, H. Ellerbrok, T. Franz, S. Linke, G. Baljer, B. Appel Highly sensitive real-time PCR for specific detection and quantification of *Coxiella burnetii* *BMC Microbiol*. 2006; 6: 2. Published online 2006 Jan 19.doi:10.1186/1471-2180-6-2.
7. Guatteo R, Beaudeau F, Joly A, Seegers H: *Coxiella burnetii* shedding by dairy cows. *Vet Res*. 2007, 38: 849-860.
8. Angerholm J. *Coxiella burnetii* associated reproductive disorders in domestic animals-a critical review / *Acta Veterinaria Scandinavica* 2013. V. 55:13
9. Kim, S.G., Kim, E.H., Lafferty, C.J., Dubovi, E.: *Coxiella burnetii* in bulk tank milk samples, United States / *Emerg. Infect. Dis.*,2005; V. 11: 619-621.
10. Gulmez Saglam, M. Sahin *Coxiella burnetii* in samples from cattle herds and sheep flocks in the Kars region of Turkey/ *Veterinarni Medicina*, 61, 2016 (1): 17–22.
11. Kargar M, Rashidi A, Doosti A, Najafi A, Ghorbani-Dalini S. The Sensitivity of the PCR Method for Detection of *Coxiella burnetii* in the Milk Samples, Zahedan *J Res Med Sci*. 2015; 17(6): -.doi: 1.17795/zjrms988.
12. Barlow J., Rauch B., Welcome F., Sung Guk Kim, Dubovi E., Schukken Y. Association between *Coxiella burnetii* shedding in milk and subclinical mastitis in dairy cattle / *Vet. Res*. 2008., V. 39:23. P 7-9.

DOI 10.18551/rjoas.2019-08.34

THE EFFECTS OF ADDING MORINGA OLEIFERA LEAVES EXTRACT ON RABBIT DOES' MILK PRODUCTION AND MAMMARY GLAND HISTOLOGY

Setiasih^{1,2}, Wahjuningsih Sri¹, Winarsih Sri³, Soetanto Hendrawan^{1*}

¹Faculty of Animal Husbandry, University of Brawijaya, Indonesia

²Institute Assessment of Agriculture Technology, Indonesian Agricultural Research and Development Agency, Indonesia

³Faculty of Medicine, University of Brawijaya, Indonesia

*E-mail: hendrawan07@ub.ac.id

ABSTRACT

The objective of this study was to examine the effects of adding Moringa leaves extracts on rabbit does' milk production and histological changes of mammary glands during their lactation phase. Three different solvents, which are n-hexane, ethanol and mixed of n-hexane and ethanol (50: 50), were used to extract Moringa leaves powder (MLP). Moringa extract was given to the does' feed by seven different treatments: 0% dosage (without extract), 0.13% dosage of HeEF, 0.26% dosage of HeEF, 0.37% dosage of EtEF, 0.74 % dosage of EtEF, 0.54% dosage of EtCE and 1.08 % dosage of EtCE. Each treatment was replicated at four does. The variables were dry matter consumption, average does' daily milk production, bunnies' daily weight, and the does' mammary gland histology. The milk production was measured twice per day in the morning (7 a.m.) and the evening (4 p.m.), obtained from the bunnies' weight gap before and after suckling. The results showed that there was a significant difference ($P < 5\%$) in treatments' effect on dry matter consumption, daily milk production and bunnies' average daily gain (ADG). From the results, treatments with the highest daily milk production were 0.54% EtCE (134.70 ± 5.77 g / day) and 0.26% EtEF (128.83 ± 10.11 g/day). The potential effect of Moringa leaves extract on the milk production was shown by an overview of mammary gland alveoli, which indicates the increasing number of the epithelial cells as well as the alveoli number and size.

KEY WORDS

Rabbit, Moringa leaves extract, milk production, mammary gland histology, galactagogue.

Nutrients sufficiency and hormones affect milk synthesis and production. Some people are using a compound called 'galactagogue' to optimize the trigger hormones. Galactagogues are drugs or substances believed to assist in the initiation, maintenance or augmentation of milk production (Rajagopal *et.al*, 2016; Wadha *et.al*, 2013). Some drugs serve as galactagogues, such as metoclopramide, domperidone, chlorpromazine, sulphiride, oxytocin, growth hormone, thyrotropin-releasing hormone, and medroxyprogesterone (Zuppa *et.al*, 2010). A few researchers reported that some plants function as galactagogue herbs such as *Moringa oleifera* (Estrella *et.al*, 2000), *Sauropusandrogynus* (Akbar *et.al*, 2013), Fenugreek (*Trigonellafoenumgraecum*) and Silymarin (*Silybummarianum*) (Zuppa, *et.al*, 2010). Antonet *et.al* (2003) reported that moringa leaves effects to accelerate milk secretion are similar to domperidone and metoclopramide. Most people prefer galactagogue herbs as they have fewer side effects.

Moringa oleifera leaves potentially increase milk production of nursing mothers in the Philippines (Estrella *et.al*, 2000; Almirante and Lim, 1996), of cows (Sanchez *et.al*, 2005; Mendiata-Aracia, 2011), of goats (Soetanto *et.al*, 2010), of Wistar rats (Pearl *et.al*, 2013; Mutiara *et.al*, 2012), and of rabbits (Alemede *et.al*, 2014). This potential is associated with the leaves' having plenty of nutrients content such as amino acids complete, vitamins and others that are used as a synthesis of milk; therefore, dairy farming highly recommends using *Moringa oleifera* leaves as feedstuff (Mendiata-Aracia *et.al*, 2010).

In addition, bioactive compounds contained in *Moringa oleifera* are considered to function as a galactagogue. According to Almirante and Lim (1996), milk production is

affected by several processes: (1) mammogenesis, which is the growth of the mammary gland namely ducts and alveoli with estrogen, progesterone, prolactin and growth hormone (2) lactogenesis, which is the initiation of milk secretion influenced by the development of mammary glandular secretion and distribution of estrogen and progesterone to the fetus and placenta (3) galactocentric, which is influenced by the oxytocin hormone promoting breast contraction to produce milk from the myoepithelial cell to the milk ducts, and (4) galactopoiesis, which is milk production maintenance, whose role is played by the prolactin hormone.

Galactagogue compound is related to the hormones; so, it is assumed that phytohormone in *Moringa oleifera* leaves plays a part in increasing milk production. The leaves contain phytosterol and isoflavone as the phytoestrogen compound (Leone *et.al*, 2015) which has estrogenic activity due to its similar chemical structure to estradiol (Ryokkynen, 2006). Phytosterols are steroids dissolved in non-polar solvents such as n-hexane; while isoflavones are a group of flavonoids optimally extracted with ethanol (Kudou *et.al*, 1991).

The objectives of this study were to examine the galactagogue effects of MLP extracts with different solvents on the milk production, ADG of bunnies and does, as well as rabbits' mammary gland histology.

MATERIALS AND METHODS OF RESEARCH

A hexane extract fraction (HeEF), an ethanolic extract fraction (EtEF) and an ethanolic crude extract (EtCE) of MLP were used in this study. The MLP was produced by *Moringa* Indonesia in Blora, Central Java, Indonesia. The particle size of the MLP was 80 mesh.

EtCE was produced by extraction of MLP using 96% ethanol (1: 8; w/v). Maceration was conducted for 24 hours and was stirred by the shaker; after that, the filtrate was evaporated and freeze-dried for 30 hours. Meanwhile, HeEF and EtEF were produced by extraction using a mixed solvent of 96% ethanol and n-hexane (50: 50; v: v). The ratio of MLP and the solvent was 1: 8 (w: v). Then, the filtrate was separated by separation funnel. The n-hexane solution was at the top layer and the ethanol solution was at the bottom layer. Next, each fraction solution was evaporated: the n-hexane was evaporated by 72 mbar and the ethanol was evaporated by 175 mbar. After that, the filtrates were freeze-dried: HeFE for 24 hours and EtFE for 30 hours.

The types of phytosterol and isoflavone compounds in MLP extracts were identified qualitatively through Liquid Chromatography-Mass Spectrometry (LCMS) in Instrumental Laboratory of *Politeknik Negeri Malang*. The identification of isoflavone was based on Konar *et.al*. (2012), while phytosterol was based on Miller and Schnute (2014).

The research involved twenty-eight heads of New Zealand White lactation rabbits on second to the third parity, whose average body weight was 2.1 kg (block-I), 2.35 kg (Block-II), 2.64 kg (block-III) and 2.85 kg (block-IV). The does were divided into four groups based on their initial body weight and allotted into a randomized complete block (RCB) design (Steel and Torrie, 1980), using seven treatments and four replications.

The treatments were E0 (pellet without MLP extract), 0.13% HeEF0 (feed containing HeEF equal 10% MLP in pellet), 0.26% HeEF (feed containing HeEF equal 20% MLP in pellet), 0.37% EtEF (feed containing EtEF equal 10% of MLP in pellet), 0.74% EtEF (feed containing EtEF equal 20% MLP in pellet), 0.54% EtCE (feed containing EtCE equal 10% MLP in pellet) and 1.08% EtCE (feed containing EtCE equal 20% MLP in pellet). Table 1 presents the composition of each treatment's feedstuff and Table 2 presents the nutrient content of pellet and forage.

The does were given treatment feed immediately after parturition. Preliminary feeding was done before mating. The ration consisted of 40% forage and 60% pellet. The rabbits were fed twice: with pellets at 7: 00 a.m and with forage at 3.00 pm.

The variables were milk production, weaning weight, bunnies' daily body weight gain, does' weight gain during lactation, mammary gland histology, the number of epithelial cells, as well as the number and size of alveoli. The milk production measurement was conducted

by weighing the bunnies before and after feeding on day-1 to day-21 after birth because at that time the bunnies were still exclusively suckling the doe's milk. The rabbits were housed in individual cages and bunnies were separated from its doe until they were 21-days old. Milk production was calculated by the difference in the total weight of the bunnies after and before feeding. Bunnies were suckling milk twice a day, which was at 7: 30 a.m and at 4: 30 pm. The weaning weight of bunnies was measured when they were 21-days old. The bunnies' ADG was calculated by the difference of the weaning weight at 21-days and the birth weight divided by 21.

Table 1 – The Feedstuff Composition of Each Treatment

Feedstuff	E0	HeEF 0.13%	HeEF 0.26%	EtEF 0.37%	EtEF 0.74%	ECE 0.54%	ECE 1.08%
Forage (%)	40	40	40	40	40	40	40
Broccoli leaves (%)	100	100	100	100	100	100	100
Total (%)	100	100	100	100	100	100	100
Pellet (%)	60	60	60	60	60	60	60
Polished rice bran (%)	70	69.87	69.74	69.63	69.26	69.46	68.93
Fish meal (%)	5	5	5	5	5	5	5
Coconut cake (%)	20	20	20	20	20	20	20
Top mix (%)*	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Salt (%)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maize meal (%)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Tapioca flour (%)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
HeEF (%)	0	0.13	0.26	0	0	0	0
EtEF (%)	0	0	0	0.37	0.74	0	0
EeCE (%)	0	0	0	0	0	0.54	1.07
Total (%)	100	100	100	100	100	100	100

*Every 10 kg of Top mix contains 12.000.000 IU of Vitamin A, 2.000.000 IU of Vitamin D3, 8.000 IU of Vitamin E, 32.000 mg of Vitamin K, 2000 mg of Vitamin B1, 5000 mg of Vitamin B2, 500 mg of Vitamin B6, 12000 mg of Vitamin B12, 25000 mg of Vitamin C, 6000 mg of Ca-D-Pantotenate, 40.000 mg of Niacin, 10.000 mg of Cholin Chloride, 30.000 mg of Methionin, 30.000 mg of Lysine, 120.000 mg of Manganese, 20.000 mg of Iron, 200 mg of Iodine, 100.000 mg of Zinc, 200 mg of Cobalt, 4.000 mg of Copper, 10.000 mg of Santoquin, 21.000 mg of Zinc basitracin, and supporting materials up to 10 kg.

Table 2 – The Nutrient Content of Pellet and Forage*

Nutrient	Pellet (all treatments combined)	Forage (Broccoli leaves)
Dry matter (%)	88.75	18
Crude Protein (%)	18.22	27.63
Extract Ether (%)	9.2	1.06
N-free Extract (%)	54.41	48.31
Crude Fiber (%)	8.79	8.28
Ash (%)	9.38	15.16
Gross energy (kcal/g)	3188.25	2955

*The results of the proximate analysis at Animal Nutrition and Feed Laboratory, Faculty of Animal Husbandry, University of Brawijaya.

The number of epithelial cell and alveoli, alveoli diameter and width were calculated in five microscope field-of-view through 400x magnification using Image Raster 3 Program. Each field-of-view was measured on 10 alveoli. The data were analyzed by ANOVA RCB design using SPSS version-23 (IBM, Harvard University). Provided there was a significant difference, it proceeded to be analyzed by LSD (Least Significant Difference).

The data about milk production and reproductive performance were analyzed using SPSS version-23 (IBM, Harvard University) with covariance analysis of randomized complete block (RCB) design using the number of bunnies as the covariance. Provided there was a significant difference, it proceeded to be analyzed by LSD.

RESULTS AND DISCUSSION

Table 3 present the result of identification phytosterol and isoflavone compounds in MLP extracts by LCMS. Both EtCE and EtFE contain isoflavone compounds which positive polarity namely daidzein, biochanin A, and glycitein, while formononetin was contained by

EtFE only. The MPL extracts do not contain genistein, the type of isoflavone commonly found in soybeans. Whereas, both EtCE and HeFE contain phytosterol types consist of lathosterol, campesterol, stigmasterol, and β -sitosterol.

Table 3 – The Identification of Phytosterol and Isoflavone Compounds in MLP Extracts

Compounds	Precursor ion	Product ion	Moringa Leaves Extract		
			EtCE	EtFE	HeFE
Isoflavone					
Daidzein	252.6	223.1; 207.7	+	+	Nid
Formononetin	266.6	251.6; 222.7	-	+	Nid
Genistein	268.6	158.6; 132.8	-	-	Nid
Biochanin A	282.6	267.5; 238.6	+	+	Nid
Glycitein	282.6	267.5; 238.6	+	+	Nid
Daidzin	417.3	255.1; 199.0	-	-	Nid
Ononin	431.3	270.3; 269.1	-	-	Nid
Genistin	433.3	271.1	-	-	Nid
Glycitin	447.3	284.9; 269.8	-	-	Nid
Sisotrin	447.3	285.1	-	-	Nid
Phytosterol					
Lathosterol	369.4	95.1; 81.1	+	Nid	+
Campesterol	383.4	161.2; 95.0	+	Nid	+
Stigmasterol*)	395.4	83.1; 83.1	+	Nid	+
β -Sitosterol	397.4	161.0; 135.2	+	Nid	+

Note: *nid* = not identified.

Table 4 presents the significant effect of different types and levels of MPL extract administration on feed intake. According to the table, the treatment of 1.08% EtCE showed the highest dose of ethanol crude extract consumption, which was 375.57 mg/kg WB/day. This led to a decrease in feed intake. The treatment of 1.08% EtCE revealed the lowest feed intake, which was 138.45 ± 16.59 g/head/day. It was only 1.08% EtCE treatment that showed different feed consumption. Therefore, it is safe to say that the effects of treatment were caused by extract consumption. The highest content of flavonoids was found in 1.08% EtCE treatment diet. Flavonoids taste bitter thus reducing feed palatability (Roland et al, 2014).

Table 4 – The Dry Matter Intake and Extract Consumption

Treatment	Extract Consumption (mg/kg BW/day)	Feed Intake (g DM/day)
E0	0	144.37 \pm 15.55 ^b
HeEF0.13%	45.63	144.05 \pm 13.1 ^{9b}
HeEF0.26%	91.26	145.82 \pm 14.57 ^b
EtEF0.37%	129.87	145.95 \pm 14.64 ^b
EtEF0.74%	259.74	142.20 \pm 12.68 ^b
EtCE0.54 %	189.54	145.95 \pm 12.68 ^b
EtCE1.08%	375.57	138.45 \pm 16.59 ^a

* *Superscript differences in the same column indicate significant differences (P < 0.5).*

Table 5 reveals MLP extract administration in the feed had a significantly different effect ($P < 0.5$) on the does' milk production and reproductive performances. The table demonstrates that the treatments have a significant effect ($P < 0.05$) on does' daily milk production and bunnies' daily weight gain. The 0.54% EtCE treatment showed the highest milk production, which was 134.70 ± 5.77 g/day. The does' milk production affected bunnies' average daily gain. The 0.26% HeFE treatment resulted in the highest bunnies' ADG, which was 12.20 ± 3.86 g/day; following this, the 0.54 % EtCE treatment result was 10.04 ± 0.96 g/day.

Figure 1 indicates the does' average daily milk production in each treatment. It presents the graphic of daily milk production in the treatments. Accordingly, the 0.26% HeEF and 0.54% EtCE treatments showed higher daily milk production than the others. The peak of milk production varied in each treatment, occurring between 9-15 days after parturition.

The highest peak milk production, which was more than 160 g/day, was obtained through 0.26% HeEF and 0.54% EtCE treatments at 12 days after the does' parturition.

Table 5 – Milk Production and Reproduction Parameters

Treatment	Bunny Size	Bunny Weight (g)	Birth Weight (g)	Daily milk production (g)	ADG of the bunny (g)	Changes of BW Does during suckling
E0	6.75±2.98	325.4±105.8	51.14±15.54	103.69±14.137 ^a	7.78±3.47 ^a	-180.0±89.07 ^{ab}
HeEF0.13%	5.25±1.50	255.29±54.75	50.18±7.63	98.45±11.67 ^a	7.10±2.94 ^a	-61.25 ±117.64 ^b
HeEF0.26%	6.25±2.36	286.32±84.74	47.45±6.82	128.83±10.11 ^b	12.20±3.86 ^b	-50.0±135.40 ^b
EtEF0.37%	5.5±2.38	282.01±92.40	53.53±8.18	108.55±11.78 ^a	8.13±3.81 ^a	0.0±35.36 ^b
EtEF0.74%	5.5±2.08	268.58±73.60	50.59±6.40	96.46±12.35 ^a	7.35±4.15 ^a	6.25±31.46 ^b
EtCE0.54%	6.0±0.81	298.26±48.84	49.73±5.34	134.70±5.77 ^b	10.04±0.99 ^{ab}	-125.75±65.25 ^b
EtCE1.08%	6.75±2.87	332.74±64.28	52.57±12.11	104.04± 6.62 ^a	6.295±0.96 ^a	-286.25±116.25 ^a

* Superscript differences in the same column indicate significant differences ($P < 0.05$).

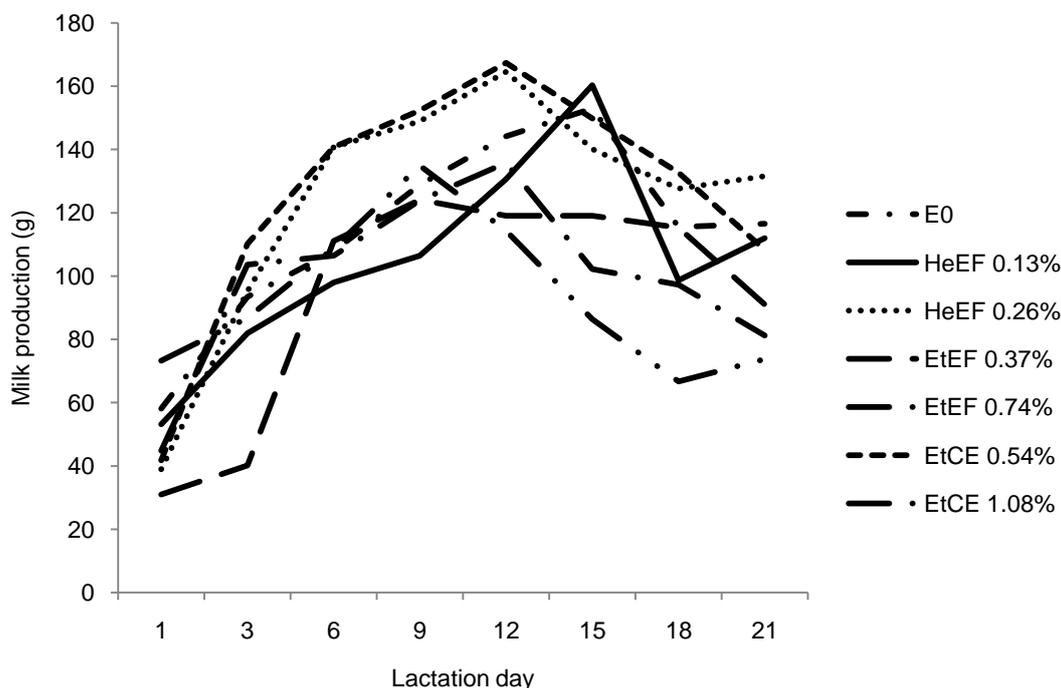


Figure 1 – The average daily milk production (g) up to 21st day of lactation.

Differences in milk production are possible due to the effect of the bioactive compounds contained in MPL extract (Mutiarra et al, 2013). It can be assumed that the compounds in hexane fraction extract had more effects on milk production than those in ethanol fraction. Based on the polarity of the solvents, hexane extract fraction contains phytosterol compounds while the ethanol crude extract compounds contain phytosterols and flavonoids in particular isoflavones (Anjani et al, 2003; Kudou et.al, 1991). Both of these compound groups have estrogenic activity (Ryokkynen, 2006). The 0.54% EtCE treatment containing phytosterol and isoflavone caused a significant increase in milk production at lower doses (which equal 10% MPL in the feed), whereas 0.26% HeFE treatment increased milk production (which equal 20% MLP in the feed).

Phytosterols are compounds whose chemical structure is similar to cholesterol, which is a precursor of steroid hormones such as estradiol and progesterone, while isoflavones are compounds whose chemical structure is similar to estradiol. Suprayogi *et.al* (2009) reported that the hexane fraction of *Sauropus androgynous* leaves has higher galactagogue potency than the fraction of the water, acetyl acetate, and ethanol crude extracts. According to Xinmei, et al. (2015), the supplementation of phytosterol at cow early lactation increased milk production, milk composition, milk fat, lactoprotein, and total solids- non-fat.

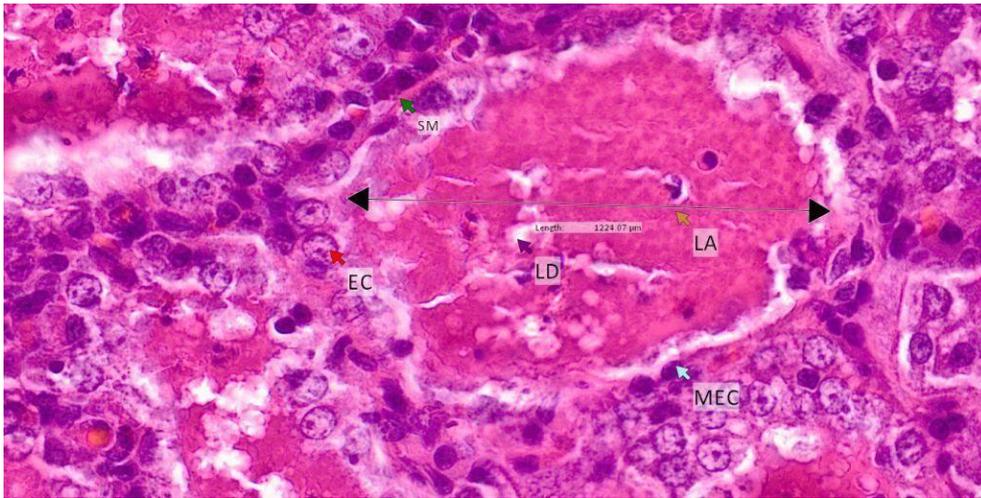


Figure 2 – The Histology of Lactating Doe's Mammary Gland, E0 (Control Treatment), 400x Enlargement (LA = lumen of the alveolus. EC= epithelial Cell. MEC =MioEpithelialCell.LD = Lipid droplets. SM = Smooth Muscle. S=Stroma)

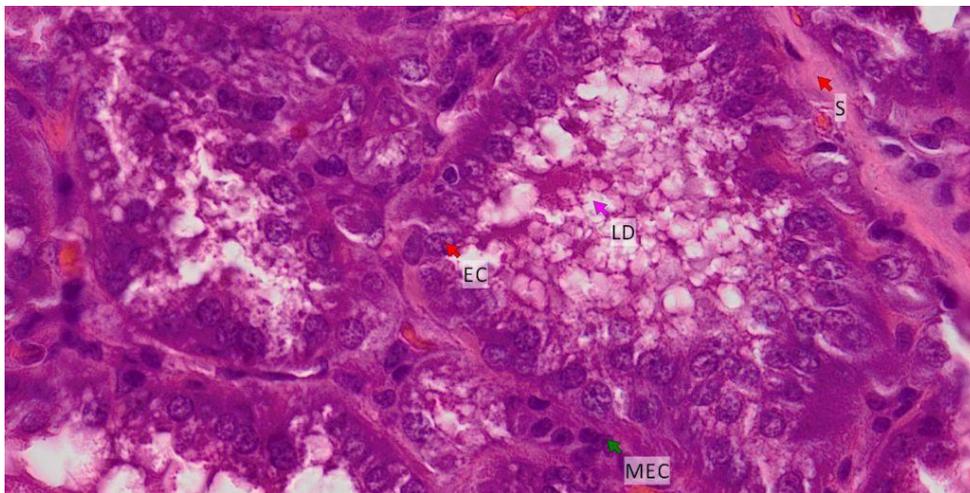


Figure 3 – The Histology of Lactating Doe's Mammary Gland, 0.26% of HeEF Treatment, 400x Enlargement (LA = lumen of alveolus. EC= epithelial Cell. MEC =MioEpithelialCell.LD = Lipid droplets. SM = Smooth Muscle. S=Stroma)

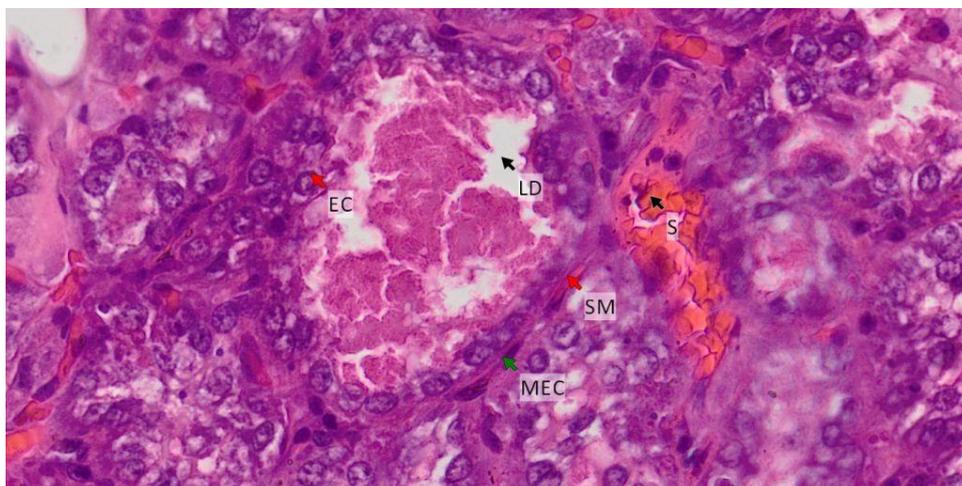


Figure 4 – The Histology of Lactating Doe's Mammary Gland, 0.54% of EtCE Treatment, 400x Enlargement (LA = lumen of alveolus. EC= epithelial Cell. MEC =MioEpithelialCell.LD = Lipid droplets. SM = Smooth Muscle. S=Stroma)

Figure 2 to 4 show the mammary histology of some treatments. The histology can calculate the number of epithelial cells and alveoli, alveoli containing milk, and alveoli size using the extensive alveolar diameter of each treatment. Table 6 presents milk production, the number of epithelial cells, alveoli diameter and width per microscope field-of-view.

The 0.54% EtCE and 0.26% HeFE treatments causing higher milk production indicated several epithelial cells and active alveoli. The total alveoli at 0.26% HeFE were 55.4 ± 8.68 , with 89.53% active alveoli and the total alveoli at 0.54% EtCE were 59.2 ± 6.94 , 95.27%, which were actively producing milk. If 0.54% EtCE is compared with E0 (control) treatment, the former increased the number of active alveoli producing milk by 62.9%, alveoli diameter by 49.75%, and epithelial cells by 300%.

Table 6 – The Number of Epithelial Cells, Diameter, and Width of the Alveoli per Microscope Field-of-view

Treatment	Milk Production (g/day)	Number of epithelial cells	Number of the alveoli			Average of alveolar lumen diameter (μm)
			Total	With milk (%)	Without milk (%)	
E0	103.69 \pm 14.137 ^a	12.39 \pm 4.8 ^a	47.6 \pm 8.96	68.49	31.51	64.02 \pm 29.59
HeEF0.13%	98.45 \pm 11.67 ^a	15.06 \pm 2.6 ^{ab}	55.4 \pm 8.68	57.14	42.86	71.51 \pm 8.77
HeEF 0.26%	128.83 \pm 10.11 ^b	35.18 \pm 1.7 ^c	46.2 \pm 12.56	89.53	10.47	85.76 \pm 7.77
EtEF 0.37%	108.55 \pm 11.78 ^a	19.96 \pm 2.09 ^{ab}	45.4 \pm 8.73	53.74	46.26	78.62 \pm 11.02
EtEF0.74%	96.46 \pm 12.35 ^a	23.33 \pm 4.68 ^b	35.2 \pm 4.97	77.84	22.16	96.51 \pm 4.59
EtCE0.54 %	134.70 \pm 5.77 ^b	37.22 \pm 2.69 ^c	59.2 \pm 6.94	95.27	4.73	95.87 \pm 27.56
EtCE1.08%	104.04 \pm 6.62 ^a	22.25 \pm 4.48 ^b	41.8 \pm 9.28	66.51	33.49	68.56 \pm 8.84

*Superscript differences in the same column indicate significant differences ($P < 0.05$).

The difference of mammary gland figure in the treatments suggested the correlation between types and doses of phytosterols and isoflavones in each MLP extract. Phytosterols are compounds whose chemical structure is similar to cholesterol, which is a precursor of steroid hormones such as estradiol and progesterone; while isoflavones are compounds whose chemical structure is similar to estradiol and have estrogenic activity (Ryokkynen, 2006). The increasing milk production was possible due to the direct or indirect effect of compounds contained in MLP extract. The direct effect of estradiol formed from phytosterol stimulates the proliferation of myoepithelial cell and induce the maturation of mammary acini for milk production (Yart, *et.al.* 2013). The indirect effect was phytosterol stimulating anterior and posterior hypophysis to secrete oxytocin and prolactin. According to Santell *et.al* (1997), the isoflavones genistein and hormone estradiol administration in ovariectomized rats increased the level of prolactin in the blood. It is evident that there is a relationship between phytoestrogens and estradiol; it affects the secretion of the prolactin hormone, which brings an impact on milk production. Kleden *et.al* (2017) asserted that adding MLP in feed can increase prolactin in lactating does' blood.

Milk production is the result of a mechanism in the epithelial cells (endocytosis) and the release mechanism (exocytosis) (Trucket and Olliver, 2009) related to the prolactin and oxytocin hormones. The hypothalamus releases oxytocin hormone, encouraging epithelial cells contraction in the cell which allows milk secretion, while prolactin serves to maintain milk production (lactogenesis) (Lollivier *et.al*, 2006).

The estrogenic activity of phytosterol compounds can increase the estradiol and progesterone hormones. Progesterone stimulates the secretory formation in mammary gland while estradiol stimulates the posterior pituitary to secrete oxytocin that serves to release the milk and stimulates the anterior pituitary to secrete prolactin and growth hormone that serves to stimulate the growth of mammary glands and to stimulate milk production (Mutiarra *et.al*, 2013).

Rabbits' mammary gland epithelial cells express oxytocin receptors and bind these receptors. There are two important effects on the mammary gland oxytocin: lactation is to accelerate the transfer of intracellular casein and to push myoepithelial cell contraction (Lollivier *et.al*, 2006).

CONCLUSION

The ethanol crude extract of MLP containing phytosterol and isoflavone has greater potential as galactagogue than the ethanol and n-hexane fraction extracts. The milk production was increased by increasing the number of epithelial cells by 300%, the alveoli producing milk by 63%, and the diameter of alveoli by 50%.

ACKNOWLEDGMENTS

We would like to express our gratitude to the leaders of the Indonesian Agency for Agricultural Research and Development Ministry of Agriculture who have funded this research.

REFERENCES

1. Almirante C.Y., C.H.N. Lim. 1996. The effectiveness of Natalac as A Galactagogue. JPMA 71 (3) January-March 1996. From Golacta.com.: 265-272
2. Antonette.M., E.A Hernandez. Benjamin G. 2003. A Comparative Study on The Efficacy of The Different Galactagogues Among Mothers with Lactational Insufficiency. J. Perinat. Assoc. Philipina; 30-37.
3. Akbar. M., SjojfanO.Minarti S. 2013. Production of Milk and Mortality Rate of Bunnies Were Feed with Added Sauropus androgynus Leaves Flour. Jurnal Ilmu Ternak dan Veteriner. 18 (4): 233-238.
4. Alemede.I.C. E.A. Onyeji. D.N. Tsado. E.L. Shiawoya. 2014. Reproductive Response of Rabbits Dose to Diets Containing Varying Levels of Horseradish (*Moringa oleifera*) Leaf Meal. J. Biol.Agr.Healthcare. 4 (19): 62-68
5. Estrella.Ma.,Corazon P.M.D., Jacinto Blas V. Mantaring III.M.D. Grace Z. David.M.D. Michelle A. Taup.M.D. 2000. A Double-blind. A randomized controlled trial on the use of malunggay (*Moringa oleifera*) for augmentation of the volume of breastmilk among non-nursing mothers of patern infants. Galacto.Com. Philippine J. Ped.49: 3-6.
6. Ferreira.P.M.P. D.F. Farias.J.T. de A. Olivera and A. de F. U. Carvalho. 2008. *Moringaoleifera*: bioactive compounds and nutritional potential. Rev. Nutr. Campinas. 21 (4); 431 – 437.
7. Foidl.N.,Makkar .H.P.S and Becker. K. 2001. The Potential of *Moringa oleifera* for Agricultural and Industrial Uses. In. Fugile.L.J. The Miracle Tree: The Multiple Attributes of *Moringa*. CTA.Publication.Wanegen. The Netherlands: 45-76
8. Halls. Amy E. 2010. Nutritional Requirement for Rabbits.Shur-Gain. Nutreco Canada Inc.
9. Kleden. M.M., H. Soetanto, Kusmartono, Kuswanto. 2017. The concentration of Progesterone and Prolactin Hormones and Milk Production of New Zealand White Rabbits Doe Fed MLP. Mediterranean J. Soc. Sci. MJSER PublishingRome-Italy.Vol 8 No 3.Doi. 10.5901/mjss.2017.v8n3p79.
10. Konar, N., E.S. Poyrazoğlu, K. Demir, and N. Artik. 2012. Determination of Conjugated and Free Isoflavones in Some Legumes by LC-MS/MS. J.of Food Compos. Anal. 25 (2): 173–78. Doi: 10.1016/j.jfca. 2011.11.004.
11. Kudou.S., Y. Fleury. D. Welti. D. Magnolato. T. Uchida. K. Kitamura.andK. Okubo. 1991. Malonylisoflavone glycosides in soybean seeds (*Glycine max* Merrill). J. Agri. and Biol. Chem. 55: 2227-2233.
12. Leone, A., A Spada. A Battezzati, ASchiraldi, J Ariistil, and S Bertoli. 2015. Cultivation.Genetic.Ethnopharmacology.Phytochemistry and Pharmacology of *Moringaoleifera* Leaves: An Overview. Int. J. Mol. Sci. 16: 12791-12835
13. Lollivier V., P.G Marnet., S Delpal.D. Rainteau.CAchard, ARobot, and M.O.Bousquet. 2006. Oxytocin stimulated secretory processes in lactating rabbit mammary epithelial cells. J. Physiol. 570 (1); 125-140.
14. Mendieta-Araica, B., Spörndly, R., Reyes-Sánchez, N. and Spörndly, E., 2010. *Moringa* (*Moringaoleifera*) leaf meal as a source of protein in locally produced concentrates for

- dairy cows fed low-protein diets in tropical areas, *Livestock Science*, DOI: 10.1016/j.livsci.2010.09.021
15. Mendieta-Araica, B.E., Spörndly, N., Reyes-Sánchez & R. Spörndly. 2011. Feeding *Moringa oleifera* fresh or ensiled to dairy cows—effects on milk yield and milk flavor. *Trop Anim Health Prod.* 43: 1039–1047
 16. Miller, M. and W. Schute. 2010. *Measuring Phytosterol in Health Supplement by LC/MS*. Thermo Fisher Scientific. San Jose. CA. USA
 17. Mutiara K.T., Harijono, T., Estiasih, E.S., Wahyuni. 2013. Effect of Lactagogue *Moringa* Leaves (*Moringa oleifera* Lam) Powder in Rats White Female Wistar. *J. Basic. Appl. Sci. Res.* 3(4): 430-434.
 18. Rajagopal, P.L., K. Premaletha, and K.R. Sreejith. A Comprehensive Review On Safe Galactagogues. 2016. *World J. Pharm. Res.* 5 (8): 1629-1640
 19. Ryokkynen, A. 2006. *Effects of Phytoestrogens on Reproduction and Weight Regulation of Mammals*. Dissertations in Biology. The University of Joensuu.
 20. Roland, W.S.U., R.J. Gouka, H. Gruppen, M. Driesse, L. van Buren, G. Smith and J. Vinken, 2014. 6-Methoxyflavanones as Bitter Taste Receptor Blockers for hTAS2R39. *PLOS One.* (9): 1-10
 21. Sanchez, N.R., J. Eva Spörndly., I. Ledin. 2006. Effect of feeding different levels of foliage of *Moringa oleifera* to creole dairy cows on intake, digestibility, milk production and composition. *Livest. Sci.* 24–31
 22. Santell, R.C., Y.C. Chang, M.G. Nair, and W.G. Helferich. 1997. Dietary Genistein Exerts Estrogenic Effects Upon The Uterus, Mammary Gland And The Hypothalamic/Pituitary Axis In Rats. *J. Nutr.* 127 (2): 263–269.
 23. Soetanto, H., S. Chuzaemi, and E. Marhaenyanto. 2010. Performance of growing goats with and without supplementation of *Moringa* leaves at Pasrujambe village, the regency of Lumajang. East Java. *Proceedings of International Seminar on Prospects and challenges of Animal Production in Developing Countries in the 21 Century.*
 24. Suprayogi A, N Kusumorini, MA Setiadi, dan YB Murti. 2009. Production of standardised *Sauropus androgynus* (L.) leaves extract as a raw material for nutrition repair, reproduction and lactation improvement. Final report of LPPM Research Institute Agricultural of Bogor.
 25. Steel, R.G.D. and J.H. Torrie. 1980. *Principles and Procedures of Statistics with Reference to the Biological Sciences*. McGraw Hill, New York.
 26. Wadha S.M.S., Panwar, N., Saini Rawat and S. Singhai. 2013. A Review on Commercial Traditional Phytoconstituents and Pharmacological Activity of *Moringa oleifera*. *Global J. Traditional Med. Syst.* 2(1): 1-13
 27. Xinmei, X., X. Ning, H. Jianbin. 2015. Physiological Function of Phytosterol and Its Application. *Anim. Husb. Feed Sci.* 7 (2): 67–69. DOI: 10.1007/s13398-014-0173-7.2.
 28. Yart, L., Finot, L., Lollivier, V. & Dessauge, F. (2013). Oestradiol enhances apoptosis in bovine mammary epithelial cells in vitro. *J. Dairy Res.* 80(1). 113–21. <https://doi.org/10.1017/S0022029912000714>
 29. Zuppa A., A. Sindico, P. Orchi, C. Carducci, V. Cardiello, C. Romagnoli and P. Catenazzi. 2010. Safety and Efficacy of Galactagogues: Substances that Induce maintain and Increase Breast Milk Production. *J. Pharm. Pharmaceut Sci.* 13(2) 162-174.

DOI 10.18551/rjoas.2019-08.35

**IDENTIFICATION OF ANISAKID NEMATODE L3 LARVAE INFECTION
ON SKIPJACK TUNA (*KATSUWONUS PELAMIS* L.) FROM KUPANG WATERS,
EAST NUSA TENGGARA OF INDONESIA**

**Haryadi Linda^{1,4}, Suprayitno Eddy², Aulanni'am Aulanni'am³, Amin Mohamad⁵,
Hariati Anik Martinah^{2*}**

¹Doctoral Program, Faculty of Fisheries and Marine Sciences, University of Brawijaya,
Malang, Indonesia

²Faculty of Fisheries and Marine Sciences, University of Brawijaya, Malang, Indonesia

³Department of Chemistry, Faculty of Mathematics and Natural Sciences,
University of Brawijaya, Malang, Indonesia

⁴Fish Quarantine and Inspection Agency Kupang, Ministry of Marine Affairs and Fisheries
of Republic of Indonesia, Kupang, Indonesia

⁵Department of Biology, Faculty of Mathematics and Sciences, University of Negeri Malang,
Malang, Indonesia

*E-mail: a_hariati@ub.ac.id

ABSTRACT

The larvae of *Anisakis* were living parasites and made marine mammals, birds and reptiles the definitive host. Identification of *Anisakis* larvae using morphological observation methods will be difficult, especially if there are only a few samples that can be identified. PCR is an identification method using DNA from a small sample quantity and can provide DNA sequence samples. This study aimed to determine the type and infection level of *Anisakis* sp. at skipjack tuna (*Katsuwonus pelamis*) from the Oeba Fish Auction (TPI) Kupang City morphologically and molecularly. Morphological analysis results of 30 *Anisakis* larvae showed the body parts of *Anisakis* larvae, namely the head, digestive tract, and tail. The infection of *Anisakis* nematodes in skipjack tuna found five individual nematodes in muscle tissue, 59 individuals in stomach tissue, and 1991 individuals in internal organs. Alignment results between isolates At1 and At2 against isolates *A. typica* comparing (outgroup), isolate At1 and At2 have high homologs. Based on the results of the study concluded that the type I *Anisakis* isolated from skipjack tuna (Savu Sea) was *Anisakis typica*.

KEY WORDS

Cetacean, dolphin, molecular, savu, whale.

Nematodes from the Anisakidae family are living parasites and make marine mammals, birds and reptiles a definitive host. Although the life cycle of this family is unclear, it is known that marine fish can act as intermediaries, paratenic hosts or definitive. Nematode *Anisakis* Djurdin, 1845 (Mladineo, Šimat, Miletić, Beck, & Poljak, 2012), generally inhabits the digestive tract of aquatic vertebrates, where euphausiid crustaceans act as intermediate hosts, fish and cephalopods as paratenic, and cetaceans as final hosts. Some *Anisakis* species, such as *Anisakis simplex* and *Anisakis pegriffii*, are known to cause clinically significant disease in humans (Zhang et al., 2007).

Anisakis spp uses fish or aquatic invertebrates such as squid and shrimp as intermediary hosts. *Anisakis* larval stages in intermediate hosts are called L3 larvae (Sakanari & Mckerrow, 1989) and (Nagasawa & Moravec, 1995). *Anisakis* spp is commonly found living on the intestinal wall, liver and muscle of fish flesh and can cause pathological effects on fish (Yoshinaga, Kinami, Hall, & Ogawa, 2006); (Hassan, Mohamed, & Osman, 2013) (Koinari, Karl, Elliot, Ryan, & Lymbery, 2013); (Anshary, Sriwulan, Freeman, & Ogawa, 2014); (Palm et al., 2017); and (Setyobudi et al., 2019).

Specific identification of nematode larvae using morphological observation methods will be difficult, especially if there is only a small amount to identify. One way of identification, to overcome this, is the Polymerase Chain Reaction (PCR). The PCR method enables the

identification process using DNA from a small quantity of material (nanograms to picograms) and provides a target DNA sequence (X. Zhu, Gasser, Podolska, & Chilton, 1998). The results have shown that Internal Transcribe Spacers (ITS-1 and ITS-2) from ribosomal nuclear DNA (rDNA) provide genetic markers for identification of adult Anisacidae, including *A. simplex*, *Hysterothylacium aduncum* and *Contraecaecum rudolphii* (XQ Zhu et al., 2002). Identification of *Anisakis* nematodes requires accuracy at the life cycle stage and each host center. It aims to understand *Anisakis* ecology and epidemiology, diagnosis, and key components of disease control and control (Cheng, 1982).

Therefore, the results of adult *Anisakis* sequencing function as a reference to identify the larval stage. The PCR mutation scanning process is combined with a selective sequence of ITS-1 and/or ITS-2. This process provides a powerful approach to identifying and differentiating *Anisakis* nematodes (at any stage of development). This identification process aims to diagnostic or taxonomy, explore the genetic composition of *Anisakis* larvae populations, and to investigate their ecology (X. Q. Zhu et al., 2007).

Molecular identification results by Palm, Damriyasa, Linda, & Oka (2008) and Anshary et al. (2014) found *A. typica* species as the dominant species in the waters of Bali and the Makassar Strait. Both of these sea waters are close to the waters of East Nusa Tenggara. The study of *A. typica* in these two waters are inseparable from the life pattern of *Anisakis* nematodes, the distribution of skipjack tuna and mackerel tuna, and the migration patterns of several marine mammals as parentic hosts.

In this study, we want to develop and apply diagnoses based on molecular DNA bonds using ITS (Internal Transcribed Spacer) analysis. This study wants to prove the most dominant species found in fish samples, assuming *A. typica* is the species most often found in Indonesian waters. Fish sampling locations are Kupang waters, East Nusa Tenggara Province, Indonesia. This research is also based on the existence of reports of human cases infected with *Anisakis* nematodes. It needs to be investigated about the protein profile that is thought to be an allergen in humans. This study aimed to determine the type and level of *Anisakis* sp. infection on skipjack tuna (*Katsuwonus pelamis*) from the Oeba Fish Auction Place (TPI) of Kupang City morphologically and molecularly.

MATERIALS AND METHODS OF RESEARCH

Anisakis nematodes collected from skipjack tuna (*Katsuwonus pelamis*) which purchased from a fish auction place in the city of Kupang. Nematode larvae collected from the surface of the internal cavity and organs (liver, intestine, stomach, and gonads). The fresh nematodes washed several times using sterile water then with 0.9% NaCl solution, then with pure water and finally with a 0.9% NaCl solution. Furthermore, nematode larvae stored in 0.9% NaCl solution at -20 °C for protein extraction and partly in 70% ethanol at 4 °C for DNA extraction.

The morphological identification process refers to J. Grabda (1991). *Anisakis* L3 larvae purified using glycerin-phenol-lactic acid distilled water solution (2: 1: 1: 1). Morphological characteristics measured were body width, esophageal length, ventricular length, tail length, body length/body width, body length/esophageal length, body length/ventricular length, and body length/tail length (Setyobudi, Jeon, Lee, Seong, & Kim, 2011). Nematodes observed with microscope (Axio Lab.A1 Zeiss).

The DNA extraction was modified from D 'Amelio et al. (2000). The nematodes rinsed with PBS and put in a 1.5 mL microtube. Then added with 200 µL extract buffer (50 mM TrisCl pH 8, 100 mM NaCl, 5 mM EDTA, 10% SDS, 10 mg/mL Proteinase K). After that, it is homogenized and incubated in a water bath at 56 °C for 2 hours. Then, added with 125 µL of 5 M NaCl and stirred with vortex for 10 sec and centrifuged at 13,000 rpm for 5 min. A total of 200 µL PCI (25: 24: 1) added in the supernatant, then centrifuged at 13,000 rpm for 10 min. This centrifugation repeated with the addition of 200 µL CI (24: 1). The supernatant added with 500 µL absolute ethanol, then incubated for 1 hour at -20 °C. The sample centrifuged for 10 min at 13,000 rpm, 4 °C. After that, Pellets added with 500 µL of 70% ethanol then centrifuged for 5 min at 13,000 rpm 4 °C. The pellet dried at 55 °C. Then 50 µL

of TE buffer pH 7.6 added to the tube. The isolated DNA PCR amplified using ITS (ITS 1.58S rDNA and ITS 2), primers NC5 (forward; 5'-GTAGGTGAACCTGCGGAAGATCATT-3') and NC2 (reverse: 5' TTAGTTTCTTTTCCTCCGCT-3'). PCR program as many as 30 cycles at a temperature of 95°C for 15 min (predenaturation), 95°C for 1 min (denaturation), 55°C for 1 min (annealing), 72°C for 1 min (extension) and 72°C for 5 min (post extension). The reaction mixture for PCR includes PCR Mix 12.5 µL, ddH₂O 8.5 µL, Primary Forward 1 µL, Primary Reverse 1 µL, DNA sample 2 µL.

RESULTS OF STUDY

Morphological Characters and Infection Rates of A. typica in Skipjack Tuna (K. pelamis). Anisacid larvae collected from 30 skipjack tuna (*K. pelamis* from NTT waters). The larvae were white, attached to the infected part, membranes wrapped with different distribution and intensity of infection. Internal organs (especially the stomach) are the organs with the highest infection rates. Morphological analysis was carried out on 30 individual larvae taken randomly, showing that the body parts of Anisacid larvae, namely the head, digestive tract, and tail. Part A is the anterior end or head to describe the nematodes having three lips around the mouth and tooth on the top of the head (larvae). Part B is part of the ventricles or digestive tract, which consists of the esophagus, ventricles, and intestines. Part B is an essential part because it used as a basis for identification of nematodes at the genus level. Part C is the posterior end or tail consisting of the anal glands, anus, and mucus (Figure 1).

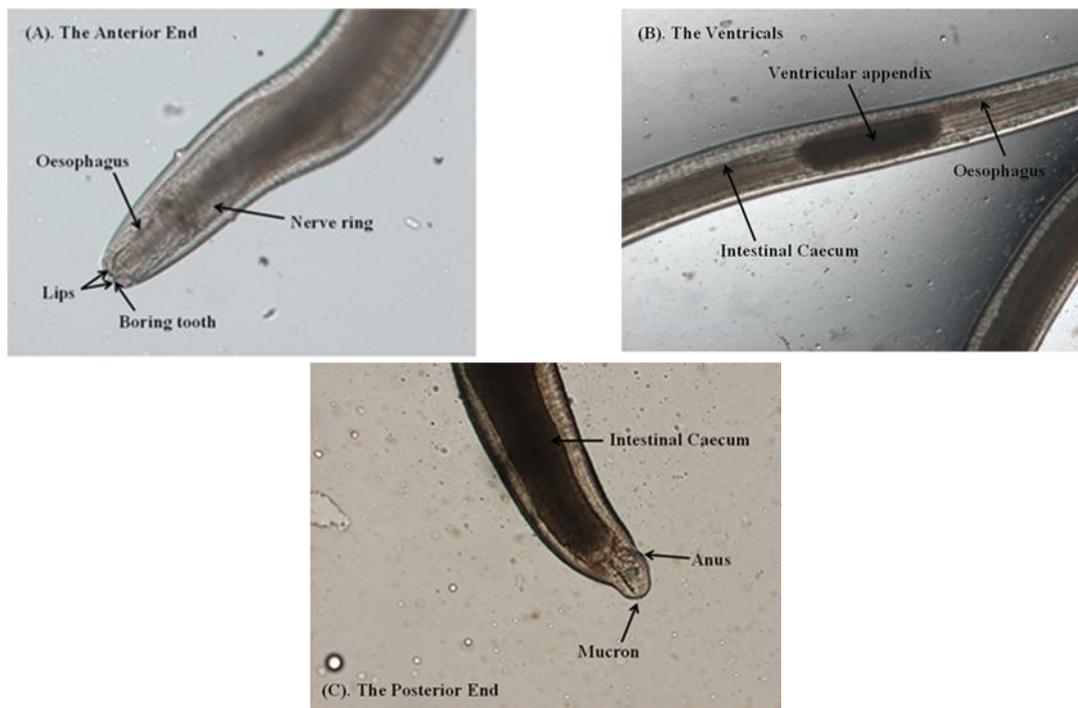


Figure 1 – Morphology of *Anisakis* Nematode. A). Anterior; B). Ventriculus; and C). Posterior

A total of 30 skipjack tuna, found five individuals nematodes in muscle tissue, 59 individuals nematodes in stomach tissue, and 1991 individuals nematodes in internal organs. Morphologically, the total body length is between 7.27 -14.42 mm, ventricular length 0.02-0.08 mm, mucron length 0.001-0.012 mm. Morphological characters were presented in Table 1.

The parasitic *A. typica* found on the inner surface of the body cavity and also found in muscles. However, the highest infection intensity of the parasite *A. typica* found in internal organs (stomach, liver, and intestine) (Palm et al., 2008). Morphologically the total body length is between 9-15mm, ventricular length 0.02-0.07mm, mucron length 0.02-0.03mm

(Quiazon, Yoshinaga, Santos, & Ogawa, 2009). The size of the ventricular length is one of the important parameters in identifying *Anisakis* spp. morphologically. The use of ventricular display in identifying *Anisakis* species has been applied to *Anisakis simplex* (ss) and *A. Pegreffii*. Anshary (2011) also confirmed that *Anisakis* type I is characterized by the presence of boring tooth at the anterior end and the mucron at the posterior end.

Table 1 – Morphological characters of *A. typica* isolation from skipjack tuna (*K. pelamis*) from NTT waters*

Morphological Characters	Size Range (mm)	Average Size, (Mean \pm SD) (mm)
Maximum Length	7.27 - 14.42	11.53 \pm 1.83
Maximum Width	0.20 - 0.48	0,33 \pm 0.07
Esophagus Length	0.01 - 0.80	0.09 \pm 0.15
Ventriculus Length	0.02 - 0.08	0.04 \pm 0.01
Ventricular width	0.01 - 0.02	0.01 \pm 0.003
Mucron Length	0.001 - 0.012	0.003 \pm 0.002

*The number of larval samples: 40.

A. typica was commonly found in tropical fish species. *A. typica* was reportedly identified from the waters of the Southwest Atlantic, West and East Atlantic, the Mediterranean Sea, the Central Pacific. Latest data from IndoPacific waters, and free-living on bottlenose dolphins (*Tursiops aduncus*) from the Hurgada coastline in the northern Red Sea, Egypt (Palm et al., 2017).

Previous studies also reported that most *Anisakis* larvae that infect fish in Indonesian waters were identified as *A. typica* (Anshary et al., 2014 and Palm et al., 2017). *Anisakis typica* populations have been genetically detected over a wide geographical range, extending from 30 southern latitudes to 35 northern latitudes in warm and tropical climates (Simonetta Mattiucci & Nascetti, 2008). Whales (*Kogia breviceps* and *Peponocephala electra*) and dolphins (*Sotalia guieanensis*, *Sotalia fluviatilis*, and *Stenella cyclimene*) were identified as parentic hosts of *A. typica* found in Brazilian waters (Iñiguez, Carvalho, Motta, Pinheiro, & Vicente, 2011 and S Mattiucci et al., 2002). According to KKP (2014) *K. breviceps* and *P. electra* as well as several species identified as *Anisakis* parentic hosts reportedly also migrated through the waters of East Nusa Tenggara. *A. typica* has been reported from marine fish around the world such as in Korea, Japan, China, Portugal, Taiwan, Brazil, Maroco, Papua New Guinea and the Mediterranean Sea (X. Q. Zhu et al., 2007; Farjallah et al., 2008; Umehara et al., 2010; and Koinari et al., 2013).

Genetic Characterization of *A. typical*. Isolate *A. typica* after observing its clinical symptoms; a PCR assay was performed to determine the genetic character of *A. typica* from skipjack tuna (*Katsuwonus pelamis*). The positive amplicon was identified as *A. typica*, carried out DNA purification. After that, sequencing and phylogenetic analysis were carried out. The results of PCR amplification using ITS primers (ITS 1.58S rDNA and ITS 2), showed that the individuals identified were *A. typica* in the 975 bp band (Figure 2).

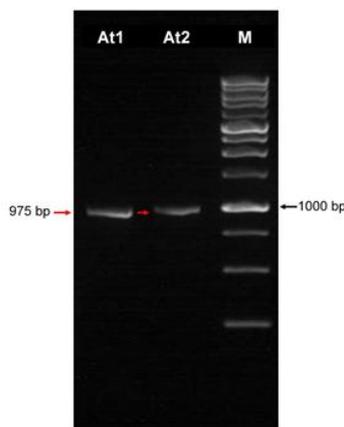


Figure 2 – PCR assay results for *A. typica* species (At1 and At2 = samples; M = Marker)

Based on the alignment results in Figure 3, between At1 and At2 isolates against *A. typica* (Outgroup), showed that At1 and At2 isolates had high homologs. The results of the nucleotide/sequence sequences of At1 and At2 isolates with their isolates showed that there were differences in nucleotide base pairs or mutations in the isolates of *A. typica* isolates of At1 and At2, which indirectly changed the composition of their amino acids.

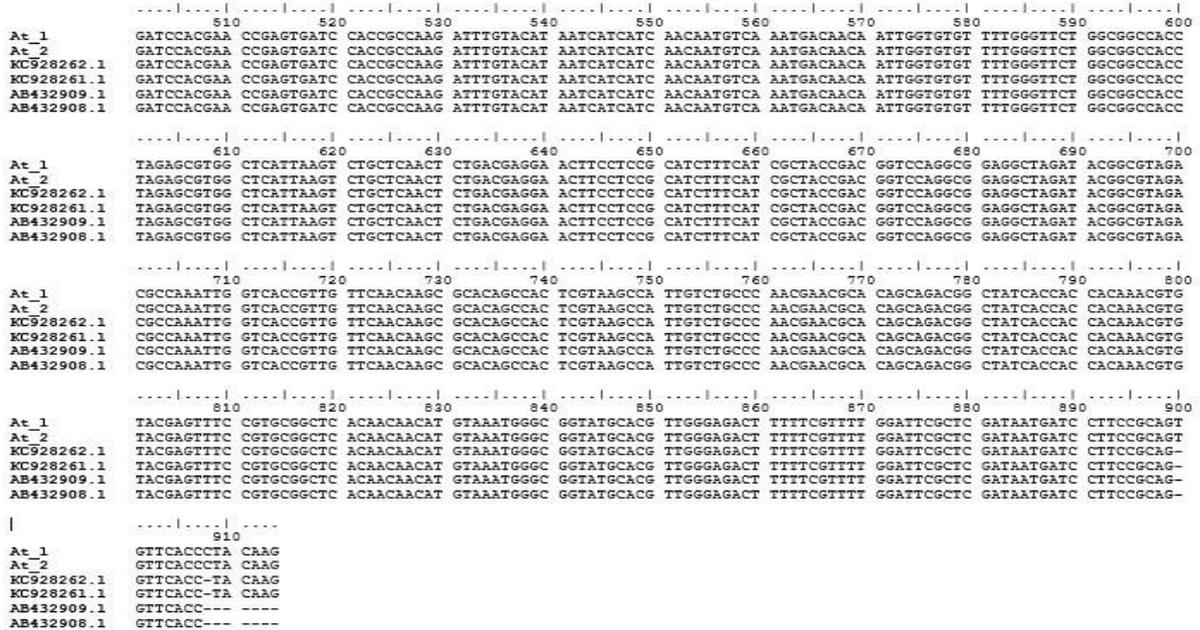


Figure 3 – Alignment Results in between At1 and At2 isolates against *A. typica* (Outgroup)

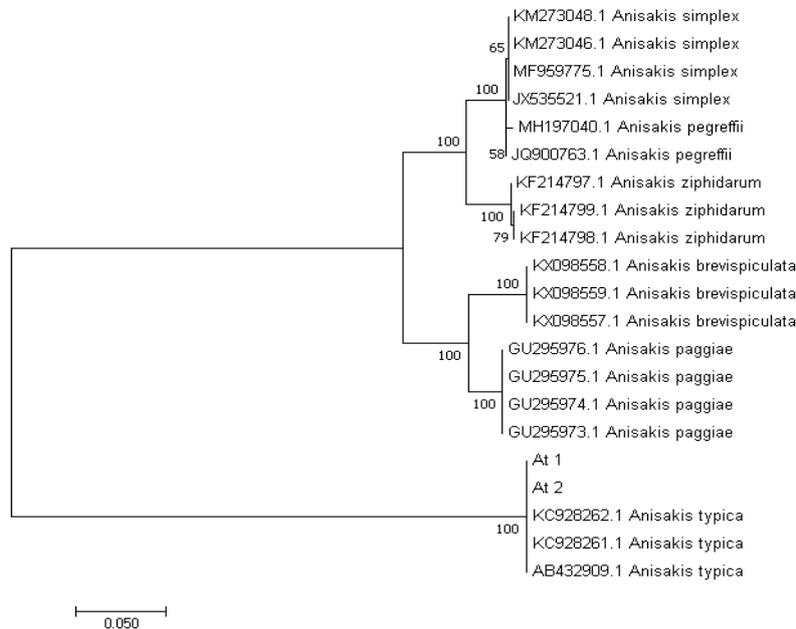


Figure 4 – Phylogenetic trees of At1 and At2 isolates with 19 comparative isolates

Molecular identification results by Palm et al. (2008) and Anshary et al. (2014) found *A. typica* as the dominant species in the waters of Bali and the Makassar Strait. Both of these waters were adjacent to the waters of East Nusa Tenggara. The results of *A. typica* in these two waters are inseparable from the life pattern of *Anisakis* nematodes, the distribution of skipjack tuna and the migration patterns of some marine mammals as parent hosts.

The waters of East Nusa Tenggara were the migration area of 30 species of Cetaceans, especially whales and dolphins. Whales and dolphins migrate from the Pacific Ocean to the Indian Ocean through Indonesian waters, especially through the waters of the Savu Sea, East Nusa Tenggara. The Savu Sea is a deep-sea bounded by the islands of Timor, Rote, Sumba, Flores, Solor, Alor, and Lembata and was reported to have a high diversity of cetaceans (there are 19 species of cetaceans in these waters) (Kahn, James-Kahn, & Pet, 2000).

CONCLUSION

The conclusions of this study were the results of morphological and PCR-sequencing of 2 samples observed from Savu sea, showed that the type I *Anisakis* species isolated from skipjack tuna was *A. typica*. The results of this study can be used to identify *Anisakis* spp parasites in Indonesian waters.

ACKNOWLEDGMENTS

We thank the Ministry of Marine Affairs and Fisheries, Republic of Indonesian and Fish Quarantine and Inspection agency Kupang for research funding (grant No.113/SJ/KP.532/III/2016).

REFERENCES

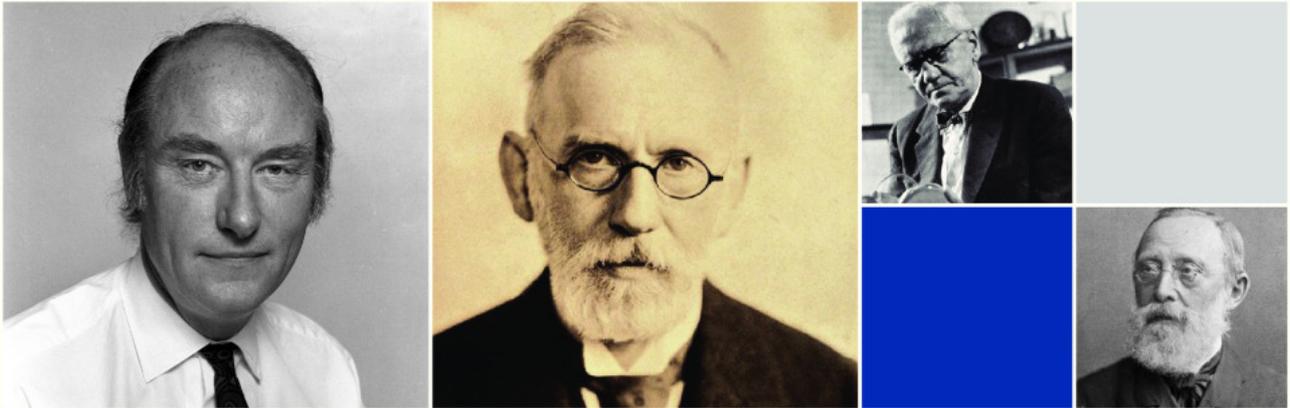
1. Anshary, H. (2011). Molecular Identification of *Anisakis* spp (Nematode: Anisakidae) from Frigate Tuna (*Auxis thazard*) and Indian Mackerel (*Rastrelliger kanagurta*) of Makassar Waters. *Journal of Fisheries Science*, XIII(2), 70–77.
2. Anshary, H., Sriwulan, Freeman, M. A., & Ogawa, K. (2014). Occurrence and molecular identification of *Anisakis* Dujardin, 1845 from marine fish in southern Makassar Strait, Indonesia. *Korean Journal of Parasitology*, 52(1), 9–19. <https://doi.org/10.3347/kjp.2014.52.1.9>.
3. Cheng, T. C. (1982). *Anisakiasis*. In J. . Steele (Ed.), *CRC Handbook Series in Zoonoses: Vol. II* (pp. 37–54). CRC Press.
4. D'Amelio, S., Mathiopoulos, K. D., Santos, C. P., Pugachev, O. N., Webb, S. C., Picanco, M., & Paggi, L. (2000). Genetic markers in ribosomal DNA for the identification of members of the genus *Anisakis* (Nematoda: Ascaridoidea) defined by polymerase-chain-reaction-based restriction fragment length polymorphism. *International Journal for Parasitology*, 30(2), 223–226. [https://doi.org/10.1016/S0020-7519\(99\)00178-2](https://doi.org/10.1016/S0020-7519(99)00178-2).
5. Farjallah, S., Busi, M., Mahjoub, M. O., Slimane, B. Ben, Paggi, L., Said, K., & D'Amelio, S. (2008). Molecular characterization of larval anisakid nematodes from marine fishes off the Moroccan and Mauritanian coasts. *Parasitology International*, 57(4), 430–436. <https://doi.org/10.1016/j.parint.2008.05.002>.
6. Grabda, J. (1991). *Marine fish parasitology* (E. Grabda, ed.). Poland: Polish Scientific Publishers.
7. Hassan, M. A., Mohamed, A. E.-M. H., & Osman, H. A. M. (2013). Some studies on *Anisakidae* larvae in some marine fish species. *Researcher*, 5(12), 608–614. <https://doi.org/10.13243/j.cnki.slx.2013.05.013>
8. Iñiguez, A. M., Carvalho, V. L., Motta, M. R. A., Pinheiro, D. C. S. N., & Vicente, A. C. P. (2011). Genetic analysis of *Anisakis typica* (Nematoda: Anisakidae) from cetaceans of the northeast coast of Brazil: New data on its definitive hosts. *Veterinary Parasitology*, 178(3–4), 293–299. <https://doi.org/10.1016/j.vetpar.2011.01.001>.
9. Kahn, B., James-Kahn, Y., & Pet, J. (2000). Komodo National Park cetacean surveys—A rapid ecological assessment of cetacean diversity, distribution and abundance. *Indonesian Journal of Coastal and Marine Resources*, 3(2), 41–59.
10. Koinari, M., Karl, S., Elliot, A., Ryan, U., & Lymbery, A. J. (2013). Identification of *Anisakis* species (Nematoda: Anisakidae) in marine fish hosts from Papua New Guinea.

- Veterinary Parasitology, 193(1–3), 126–133. <https://doi.org/10.1016/j.vetpar.2012.12.008>.
11. KKP (Ministry of Marine and Fisheries). 2014. Ministry of Marine and Fisheries Decision of Republik Indonesia No.6/KEPMEN-KP/2014. Management planning and zoning of Savu sea national park and surround area in East Nusa Tenggara. 427. 2014-2043.
 12. Mattiucci, S, Paggi, L., Nascetti, G., Portes Santos, C., Costa, G., Di Benedetto, A. , ... Bullini, L. (2002). Genetic markers in the study of *Anisakis typica* (Diesing, 1860): larval identification and genetic relationships with other species of *Anisakis* Dujardin, 1845 (Nematoda: Anisakidae). *Systematic Parasitology*, 51, 159–170.
 13. Mattiucci, Simonetta, & Nascetti, G. (2008). Advances and Trends in the Molecular Systematics of Anisakid Nematodes, with Implications for their Evolutionary Ecology and Host-Parasite Co-evolutionary Processes. In *Advances in Parasitology* (Vol. 66, pp. 47–148). [https://doi.org/10.1016/S0065-308X\(08\)00202-9](https://doi.org/10.1016/S0065-308X(08)00202-9).
 14. Mladineo, I., Šimat, V., Miletić, J., Beck, R., & Poljak, V. (2012). Molecular identification and population dynamic of *Anisakis pegreffii* (Nematoda: Anisakidae Dujardin, 1845) isolated from the European anchovy (*Engraulis encrasicolus* L.) in the Adriatic Sea. *International Journal of Food Microbiology*, 157(2), 224–229. <https://doi.org/10.1016/j.ijfoodmicro.2012.05.005>.
 15. Nagasawa, K., & Moravec, F. (1995). Larval Anisakid Nematodes of Japanese Common Squid (*Todarodes pacificus*) from the Sea of Japan. *The Journal of Parasitology*, 81(1), 69–75. <https://doi.org/10.2307/3284008>.
 16. Palm, H. W., Damriyasa, I. M., Linda, & Oka, I. B. M. (2008). Molecular genotyping of *Anisakis* Dujardin, 1845 (Nematoda: Ascaridoidea: Anisakidae) larvae from marine fish of Balinese and Javanese waters, Indonesia. *Helminthologia*, 45(1), 3–12. <https://doi.org/10.2478/s11687-008-0001-8>.
 17. Palm, H. W., Theisen, S., Damriyasa, I. M., Kusmintarsih, E. S., Oka, I. B. M., Setyowati, E. A., ... Kleinertz, S. (2017). *Anisakis* (Nematoda: Ascaridoidea) from Indonesia. *Disease of Aquatuc Organism*, 123, 141–157.
 18. Quiazon, K. M. A., Yoshinaga, T., Santos, M. D., & Ogawa, K. (2009). Identification of Larval *Anisakis* spp. (Nematoda: Anisakidae) in Alaska Pollock (*Theragra chalcogramma*) in Northern Japan Using Morphological and Molecular Markers. *Journal of Parasitology*, 95(5), 1227–1232. <https://doi.org/10.1645/ge-1751.1>
 19. Sakanari, J. A., & Mckerrow, J. H. (1989). Anisakiasis. *Clinical Microbiology Reviews*, 2(3), 278–284.
 20. Setyobudi, E., Jeon, C. H., Lee, C. H., Seong, K. B., & Kim, J. H. (2011). Occurrence and identification of *Anisakis* spp. (Nematoda: Anisakidae) isolated from chum salmon (*Oncorhynchus keta*) in Korea. *Parasitology Research*, 108(3), 585–592. <https://doi.org/10.1007/s00436-010-2101-x>.
 21. Setyobudi, E., Rohmah, I., Fauziana Syarifah, R., Ramatia, L., Murwantoko, M., & Wahyu Kartika Sari, D. (2019). Presence of *Anisakis* nematode larvae in Indian mackerel (*Rastrelliger* spp.) along the Indian Ocean southern coast of East Java, Indonesia. *Biodiversitas Journal of Biological Diversity*, 20(1), 313–319. <https://doi.org/10.13057/biodiv/d200136>.
 22. Umehara, A., Kawakami, Y., Ooi, H. K., Uchida, A., Ohmae, H., & Sugiyama, H. (2010). Molecular identification of *Anisakis* type I larvae isolated from hairtail fish off the coasts of Taiwan and Japan. *International Journal of Food Microbiology*, 143(3), 161–165. <https://doi.org/10.1016/j.ijfoodmicro.2010.08.011>.
 23. Yoshinaga, T., Kinami, R., Hall, K. A., & Ogawa, K. (2006). A Preliminary Study on the Infection of Anisakid Larvae in Juvenile Greater Amberjack *Seriola dumerili* Imported from China to Japan as Mariculture Seedlings. *Fish Pathology*, 41(3), 123–126. <https://doi.org/10.3147/jsfp.41.123>.
 24. Zhang, L., Hu, M., Shamsi, S., Beveridge, I., Li, H., Xu, Z., ... Gasser, R. B. (2007). The specific identification of anisakid larvae from fishes from the Yellow Sea, China, using mutation scanning-coupled sequence analysis of nuclear ribosomal DNA. *Molecular and Cellular Probes*, 21(5–6), 386–390. <https://doi.org/10.1016/j.mcp.2007.05.004>.
 25. Zhu, X., Gasser, R. B., Podolska, M., & Chilton, N. B. (1998). Characterisation of anisakid

- nematodes with zoonotic potential by nuclear ribosomal DNA sequences. *International Journal for Parasitology*, 28(12), 1911–1921. [https://doi.org/10.1016/S0020-7519\(98\)00150-7](https://doi.org/10.1016/S0020-7519(98)00150-7).
26. Zhu, X. Q., D'amelio, S., Palm, H. W., Paggi, L., George-Nascimento, M., & Gasser, R. B. (2002). SSCP-based identification of members within the *Pseudoterranova decipiens* complex (Nematoda: Ascaridoidea: Anisakidae) using genetic markers in the internal transcribed spacers of ribosomal DNA. *Parasitology*, 124(6), 615–623. <https://doi.org/10.1017/s0031182002001579>.
27. Zhu, X. Q., Podolska, M., Liu, J. S., Yu, H. Q., Chen, H. H., Lin, Z. X., ... Lin, R. Q. (2007). Identification of anisakid nematodes with zoonotic potential from Europe and China by single-strand conformation polymorphism analysis of nuclear ribosomal DNA. *Parasitology Research*, 101(6), 1703–1707. <https://doi.org/10.1007/s00436-007-0699-0>.

Find us on  acebook:

<http://www.facebook.com/pages/Russian-Journal-of-Agricultural-and-Socio-Economic-Sciences/336145216497494>



They didn't have it in their time...



...imagine what **you** could achieve with it now

Images of Francis Crick and John Kendrew courtesy of MRC Laboratory of Molecular Biology. All other images courtesy of Wellcome Library, London

UK PubMed Central

A unique, free, information resource for biomedical and health researchers

ukpmc.ac.uk

UK PubMed Central brought to you by:



A service of the National Library of Medicine and the National Institutes of Health

