UDC 332

ANALYSIS OF PIG'S MARKET PERFORMANCE IN ALOK SUB-DISTRICT, SIKKA DISTRICT, EAST NUSA TENGGARA PROVINCE OF INDONESIA

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ABSTRACT
The asymmetry of information among market participants often causes by price disparities, resulting in low prices for farmers. This can be attributed to collusion among the institutions involved in marketing pigs in the study location. The research objective was to determine the marketing mechanism and performance of the pig market, which was achieved through the survey method. Sampling was conducted in several stages. Firstly, sample villages were determined purposively. Secondly, farmer respondents were determined non proportionally. Finally, marketing institution respondents were determined using snowball sampling techniques. The analysis methods used were farmer's share analysis, marketing margin analysis, and marketing efficiency analysis. The analysis results indicate that the marketing mechanism for pigs in Alok Sub-district, Sikka Regency involves two channels: channel 1 (farmer-collecting traders-slaughterhouse) and channel 2 (farmer-slaughterhouse). The farmer's share in the marketing process is 67.52%. In channel 1, the marketing margin is IDR9,195,637.31/AU with a total marketing cost of IDR932,172.85/AU and a marketing profit of IDR8,263,464.46/AU. The marketing margin for channel 2 is IDR9,195,637.31/AU with total marketing costs of IDR229,772.73/AU and marketing profits of IDR8,965,864.58/AU. The marketing efficiency value is 3.65% for channel 1 and 0.81% for channel 2, indicating an efficient pig marketing system in Alok District, Sikka Regency.

KEY WORDS
Pig's market, market performance, farmer's share, marketing margin.

Pig farming is one of the livestock commodities that has potential to be developed. Data from the Directorate General of Animal Husbandry and Animal Health at the Ministry of Agriculture shows that there has been an increase in the national pig population by 5.1% from 7,622,724 in 2020 to 8,011,776 in 2021. The region that contributes the most pigs is East Nusa Tenggara Province (NTT) of 33.63% with the pig population in 2020 reaching 2,694,830 heads and decreasing in 2021 to 2,598,370 heads, with a growth rate of -3.57% per year. This condition was caused by the large number of pig deaths due to the ASF virus outbreak during that period.

Pig farming still dominates livestock farming in Sikka Regency to this day. The pig population in Sikka Regency in 2021 was 70,343 heads and increased to 78,081 heads in 2022 with a growth rate of 11.00%. However, the pig farming business that is usually run by the community is still on a household scale. Pig farming is one of the key productive businesses that is very beneficial in people's lives in Sikka Regency in general and in Alok District in particular as a trading center (district market).

From a socio-cultural perspective, pigs are used as the main sacrifice in various traditional ceremonies such as belis (bride price), death ceremonies, groundbreaking ceremonies and building house foundations and various other thanksgiving events. From an economic perspective, the pig farming business is considered profitable because pigs are omnivorous animals which make it easy to provide feed from various feed sources and have high productivity and fast growth. Apart from that, people use pig farming as savings or a source of emergency funds which will be sold when there is an urgent need such as paying for children's education, health costs and other family needs. The need for pig farming is what maintains the existence of the pig farming business to this day.

The demand for pig farming has increased significantly over time. BPS NTT data shows that pork production in Sikka Regency in 2020 was 18,729.68 kg, increasing to 1,008,415.00 kg in 2021. This increase in demand needs to be balanced with the availability and supply of pigs on the market. To encourage pig farmers to always be motivated to increase their production, the aspect that needs special attention is pig marketing. The more efficient livestock marketing is, the higher the income that farmers will obtain, and vice versa. However, in pig marketing, there are differences in the interests and objectives of the three parties, namely producers, marketing institutions and consumers. Producers want high selling prices, marketing institutions want high profits and consumers want relatively low prices. The existence of price uncertainty causes the price received to be disproportionate to the farmer's expectations.

Market information asymmetry often occurs between breeders and traders which tends to be more detrimental to breeders, where price determination during transactions is based on the estimated value of pigs as seen from the exterior appearance of their bodies. The existence of collusion between marketing institutions that have direct contact with breeders can trick breeders so that they buy at cheaper prices, as a result of the breeders' weak bargaining position in livestock buying and selling transactions.

In addition, the increasingly long trading chain makes pig marketing less efficient, so that the income of each party involved cannot be shared fairly. Thus, there needs to be an effort to improve the management of pig marketing so that it can provide fair benefits to all parties involved in marketing. Therefore, research regarding analysis of the marketing performance of pigs in Alok District, Sikka Regency needs to be carried out, to find out whether the marketing mechanisms used by farmers are efficient when viewed from farmer's share and marketing margin. The research aims to: 1) determine marketing mechanisms; and 2) To analyze the performance of the pig livestock market in Alok District, Sikka Regency.

METHODS OF RESEARCH

This research was conducted in Alok District, Sikka Regency, East Nusa Tenggara Province. The data collection period was carried out for one month from March to April 2023.

The type of data used in this research is qualitative and quantitative data. Qualitative data includes identity data from respondents (gender, livestock ownership status, education level, occupation and so on), description of marketing channels. Quantitative data includes data in the form of numbers such as age, business experience, number of family members and dependents, purchase price, sales price, marketing costs and so on.

The data sources for this research are primary data and secondary data. Primary data is data taken from sample respondents based on a list of questions that have been prepared in advance. Meanwhile, secondary data is data collected from books, statistical reports and various library sources as well as data from agencies related to research.

Sampling is carried out in two stages. The first stage was determining sample sub-districts using a purposive sampling method with several basic considerations so that 2 sub-districts and 3 sample villages were selected. The second stage was determining sample respondents using a non-proportional sampling method by fulfilling several criteria, so that 30 sample respondents were taken from each sample sub-district to obtain sample respondents of 60 breeders. Determination of sample respondents at the trading agency level was determined using the snowball sampling technique.

The data collection method used is a survey, with data collection techniques in this research prepared primarily through observation and interviews. Observation means collecting data through direct observation and tracing at the research site.

Data collection using interview techniques was carried out through direct interviews with sample respondents, namely from sample breeders and sample trading institutions based on previous questionnaires. The list of questions compiled was designed in two models, namely model A for sample breeders and model B for trading institutions, namely collecting traders at the sub-district level and RPH.

The data analysis methods used in the research consist of qualitative and quantitative. The marketing mechanism is intended to determine the channels through which pigs are marketed in Alok District. The market performance analyzed is farmer's share (Fs), trading margin or marketing margin (Mm) which includes marketing costs (Mc) and marketing profits (Mp).

Farmer's share is the share of the price received by farmers from the price paid by final consumers in the form of a percentage (%). Mathematically, the FS formula proposed by Azzaino (1981) quoted by Nagi et al. (2023) are as follows:

$$FS = \frac{Pf}{Pr} \times 100\%$$

Where: FS = farmer's share, Pf = price at the farmer level, and Pr = price at the slaughterhouse level.

Margin pemasaran merujuk pada kata lain sebagai perbedaan antara apa yang dibayar oleh konsumen dan apa yang diterima oleh produsen. Secara sistematis rumus margin pemasaran sebagai berikut:

$$Mm = Pr - Pf \; or \; MM = B + K$$

Where: MM = marketing margin (Rp/AU), Pr = price at slaughterhouse level (Rp/AU), Pf = price at farmer level (Rp/AU), B = marketing costs for pigs (Rp), K = profit pig marketing (Rp)

Marketing costs or also called sales management costs are the expenses required to distribute goods from the producer point to the consumer point outside of production costs.

Marketing profit is the difference in selling prices at the level of each marketing agency minus the sales costs incurred by each sales agency at different price levels. The formula used is as follows:

$$Mp = Pp - Pf - Mc$$

Where: Mp = marketing profit (Rp), Pp = price at trader level (Rp/AU), Pf = price at breeder level (Rp/AU), and Mc = marketing cost/marketing costs (Rp).

Marketing efficiency is the comparison between total costs and selling prices at the slaughterhouse level. The formula used is as follows:

$$e = \frac{\sum TC}{Pr} \times 100\%$$

Where: e = financing efficiency, ∑TC = total trading costs by each trading agency, and Pr = selling price at the slaughterhouse level.

Shepherd (1962) in Jawamara et al. (2021) states that if the "e" value is less than 20%, it means that the trading system is efficient and conversely, if the "e" value is more than 20%, it means that the level of efficiency is low from a financing perspective.

RESULTS AND DISCUSSION

Alok District is one of the island sub-districts, which consists of 3 villages and 4 sub-districts. The number of administrative areas with RWs and RTs in Alok District consists of 7 sub-districts/villages, 54 RWs and 210 RTs. The largest number of RTs is Madawat Village, namely 60 RTs, and the smallest are Gunung Sari and Samparong Villages, namely 12 RTs.

The results of the research show that 78.33% of breeders in Alok District are male and 21.67% are female, while at the level of traders collecting and slaughtering slaughterhouses in Alok District 100% are male. It can be concluded that the majority of pig farming business and marketing in Alok District is carried out by men. It should be noted that the pig farming business is a joint family business so that one of them can represent the research respondent.

Research by Iyai and Saragih (2015) shows that production activities are usually carried out by women from the production to post-production stages, while men usually also help in maintaining and making decisions, usually decisions are made through deliberation and democracy.

Goma et al. (2021) states that the productive age ranges between 15-64 years, while the unproductive age is below 15 years and above 64 years. The results of the research show that the average age of breeders in Alok District is 46.45 years (SD=10.41 and KV=22.42%) of which only 1.76% are classified as non-productive age and 98.33% are classified as non-productive age and 98.33% are classified as non-productive age. productive, so that it can ensure the sustainability of the pig farming business in the future.

The average age of collecting traders in Alok District is 43 years (SD=13.59 and KV=31.60%). The average age of slaughterhouses in Alok District is 48.43 years (SD=7.40 and CV=15.29%). The results of the age level classification show that the age of sub-district collector traders and slaughterhouses is 100% included in the productive age

The highest education level of respondent breeders was a tertiary education level of 30.00% and the lowest was a junior high school education level of 16.67%. Even though the education with the largest number of respondents is university, the pig farming business is only considered as a source of additional income, so that the maintenance and marketing of pigs is given less attention and they only use old/traditional methods that have been carried out for generations. This is supported by Wea's (2015) statement that raising pigs is a part-time job or a hereditary activity or just a hobby. This condition does not support the development of pig farming businesses, especially in increasing income.

The highest level of education for sub-district collector traders is a junior high school education level of 66.67% and at the slaughterhouse level, a high school education level is 71.43%. Based on the distribution of formal education levels, it can be concluded that the formal education level of sub-district collector traders in Alok District is still low where the majority, namely 66.67%, have at least junior high school education.

The results of the analysis show that in Alok District the majority of livestock farmers earn their living as laborers/handymen/drivers, namely 30.00% and 18.33% are housewives (IRT). From the results of interviews during the research, it is known that the main livelihoods of breeders vary from farmers to civil servants, while the pig farming business is a side business. Even though pig farming is not a main business, it is argued that farmers still keep pigs as additional income and savings for urgent needs in the future. This means that pig farming activities play an important role in the economic life of the community.

The central agency groups the number of family dependents into three groups, namely small family dependents of 1–3 people, medium family dependents of 4–6 people, and large family dependents of >6 people (Hanum 2018). The results of the analysis show that the average number of dependents in a farmer's family in Alok District is 3.18 people (SD=1.36 and KV=42.72%). Data shows that 61.67% of farmers have family dependents of <3 people and 38.33% have dependents of 4–6 people. Based on the results above, it can be concluded that pig farmers in Alok District have a small number of family dependents. The average number of family dependents of collecting traders in Alok District is 3 people (SD=1.38 and KV=55.38%). Data shows that 83.33% have family dependents of <3 people and 16.67% have 4–6 dependents.

The average number of dependents in the slaughterhouse family is 2.29 people (SD=0.88 and CV=38.53%). Data shows that 85.71% of farmers have family dependents of <3 people and 14.29% have dependents of 4–6 people. Based on the results above, it can be concluded that traders collecting and slaughtering slaughterhouses in the sub-district are also included in the group with a small number of family dependents.

The existence of these family members is a burden when viewed from a consumption perspective, but if viewed from a labor perspective, the presence of family members can support the ongoing pig farming and pig marketing business.

Wahyono (2017) states that the length of business is the length of time that traders have spent running their business, in years. The results of the analysis show that the average business experience of breeders is 14.53 years (SD=11.14 and KV=76.63%). Data

shows that 7 people (11.67%) had business experience of less than 5 years, 25 people had 5–10 years (41.67%), and 28 people had more than 10 years (46.67%) . These figures show that generally farmers are quite experienced in raising pigs. With a long period of time, the business will increase, the skills of the farmer will increase in running the business and supported by a large number of regular customers, this can ensure the sustainability of the pig farming business.

The average business experience of collecting traders is 10.17 years (SD=7.29 and KV=71.70%). Data shows that 5 people (83.33%) have business experience of 5-10 years, and 1 person (16.67%) has more than 10 years of business experience. The average experience in the slaughterhouse business is 5.57 years (SD=2.32 and CV=41.66%). There were 3 slaughterhouse slaughterers who had business experience of less than 5 years (42.86%), and 4 people with 5–10 years (57.14%). This means that the abattoirs are not experienced enough, so it is hoped that based on the results obtained they will be able to provide encouragement to the abattoirs to continue running and developing their business.
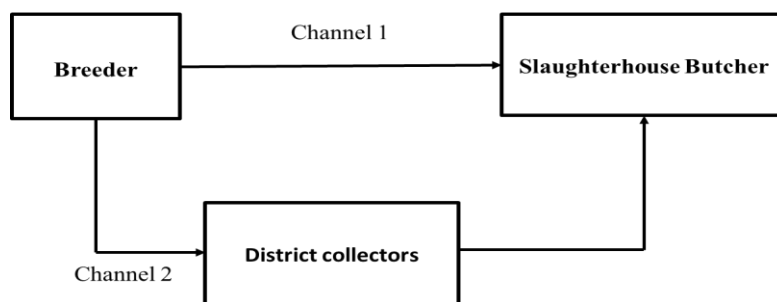
Pig marketing channels can be seen in Figure 1.

Figure 1 – Pig marketing channels in Alok District.

The analysis results in Table 1 are based on analysis of primary data obtained directly from respondents regarding prices and costs calculated over a period of one year.

Table 1 – Analysis of price, farmer's share, costs, and profits/year of marketing pigs
in Alok District, 2023

Marketing chain	Sale price (IDR/AU)	Share (%)
Channel 1		
Breeder	19.113.453,60	67,52
District collectors	27.963.891,68	98,78
Total cost	870.581,94	3,08
Profit	7.979.856,14	28,19
Slaughterhouse butcher	28.309.090,91	100,00
Total cost	61.590,91	0,22
Profit	283.608,32	1,00
Channel 2		
Breeder	19.113.453,60	67,52
Slaughterhouse butcher	28.309.090,91	100,00
Total cost	229.772,73	0,81
Profit	8.965.864,58	31,67

Note: AU - animal unit.
Source: Primary data 2023 (processed).

The data in Table 1 shows that the farmer's share received by breeders is 67.52%. This result is not much different from the research of Ballo and Lalus (2021) with the average farmer's share for Kupang Regency being 68.59%. Based on the size of the farmer's share, it can be said that the marketing channel is efficient, because the value of the farmer's share is greater than 50%, in accordance with Sudiyono's opinion quoted by Zahra and Nauly (2021) that if the price received by the farmer is >50%, then the marketing is said to be efficient.

Lalus (2021) suggests that the trading margin is the difference between the price paid at the consumer level and the price received at the farmer level. The process of flowing

goods or products from producers to consumers requires marketing costs, so the higher the marketing costs incurred, the marketing profits can be reduced. The amount of costs incurred and the profits obtained will affect the marketing margin.

Table 2 – Pig marketing margin in Alok District, 2023

No of Channel	Marketing Chain	Sale Product (Rp/AU)	Marketing Margin
I	Breeder	19.113.453,60	
I	District collectors	27.963.891,68	8.850.438,08
I	Slaughterhouse butcher	28.309.090,91	345.199,23
	Total Margin		9.195.637,31
II	Breeder	19.113.453,60	
II	Slaughterhouse butcher	28.309.090,91	
	Total Margin		9.195.637,31

Source: Primary data 2023 (processed).

Based on Table 2, it can be seen that the marketing margin received by sub-district collectors is IDR8,850,438.08/AU. Furthermore, the marketing margin received by the slaughterhouse is IDR345,199.23/AU. The marketing margin for pigs in Alok District is IDR9,195,637.31/AU. The large difference in margin value between sub-district collectors and slaughterhouses is caused by the difference in selling prices between breeders, sub-district collectors and slaughterhouses and the costs borne by sub-district collectors are much greater than the costs at slaughterhouses.

Table 3 shows that the costs borne by collecting traders are the costs incurred when buying and selling livestock, namely the costs of levies or travel documents, transportation costs in the form of purchasing petrol, labor costs, and informant costs, namely the costs of obtaining breeder information from the public. Apart from that, there are also costs during shelter, namely food and health costs. The total marketing costs incurred by collecting traders are IDR870,581.94/AU.

The costs incurred by slaughterhouses on Channel 1 and Channel 2 are only differentiated by the transportation costs on Channel 2 to transport livestock from the breeder's house to the slaughterhouse, apart from that, the costs incurred for buying and selling pigs consist of fees for ante mortem examinations, post mortem and shelter as well as stall rental costs. The total marketing costs incurred by collecting traders in Channel 1 amounted to IDR61,590.91/AU, while in Channel 2 it amounted to IDR229,772.73/AU.

The total costs incurred by marketing actors in Alok District, Sikka Regency on Channel 1 are IDR932,172.85/AU, while on Channel 2 it is IDR229,772.73/AU.

Table 3 – Pig marketing costs in Alok District in 2023

Marketing Actors	Marketing Cost		Price (IDR/AU)
Channel 1			
	1.	Transportation	358.778,63
	2.	Labors	267.175,57
	3.	Informant	37.558,69
District Collector Traders	4.	Tax/retribution	47.058,82
	5.	Feed	58.206,11
	6.	Health	101.804,12
	Total Cost		870.581,94
	1.	Transportation	
Slaughterhouse butcher	2.	Tax/retribution	46.136,36
	3.	Stall rent	15.454,55
	Total Cost		61.590,91
Total Marketing Cost			932.172.85
Channel 2			
	1.	Transportation	168.181,82
Slaughterhouse butcher	2.	Tax/retribution	46.136,36
	3.	Stall rent	15.454,55
Total Marketing Cost			229.772,73

Source: Primary data 2023 (processed).

Based on the analysis results in Table 4, the marketing profit on Channel 1 is IDR 8,263,464.46/AU, while the total marketing profit on Channel 2 is IDR 8,965,86458/AU.

Table 4 – Profits from marketing pigs in Alok District, 2023

Marketing chain	Sale price (IDR/AU)
Channel 1	
Breeder	19.113.453,60
District collectors	27.963.891,68
- Total Cost	870.581,94
- Profit	7.979.856,14
Slaughterhouse butcher	28.309.090,91
- Total cost	61.590,91
- Profit	283.608,32
Total Profit	8.263.464,46
Channel 2	
Breeder	19.113.453,60
Slaughterhouse butcher	28.309.090,91
- Total cost	229.772,73
- Profit	8.965.864,58

Source: Primary data 2023 (processed).

Table 5 – Pig marketing efficiency in Alok District in 2023

Marketing Actors	Sale price (IDR/AU)	Marketing Cost (IDR/AU)	Marketing Efficiency (%)
Channel 1			
District collectors	27.963.891,68	870.581,94	
Slaughterhouse butcher	28.309.090,91	61.590,91	3,29
Total		932.172,85	
Channel 2			
Slaughterhouse butcher	28.309.090,91	229.772,73	0,81

Source: Primary data 2023 (processed).

Based on Table 5, the marketing efficiency of pigs in Channel 1 is 3.29%, while in Channel 2 it is 0.81%. Based on the marketing efficiency value (e), it can be said that the pig marketing system in Alok District is efficient. In accordance with the opinion of Shepherd (1962) in Jawamara et al. (2021) states that if the "e" value is less than 20%, it means that the trading system is efficient and conversely, if the "e" value is more than 20%, it means that the level of efficiency is low from a financing perspective.

CONCLUSION

The marketing mechanism for pigs in Alok District, Sikka Regency is through two channels, namely Channel 1 (farmers-traders, collectors-slaughterhouses) and Channel 2 (farmers-slaughterhouses). Farmer's share received in this marketing channel is 67.52%. The marketing margin is IDR 9,195,637.31. The marketing efficiency value in Channel 1 is 3.65%, while in Channel 2 it is 0.81%, so the pig marketing system in Alok District is efficient.

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