



UDC 332

PIG SLAUGHTER BUSINESS ANALYSIS AT RUTENG'S ABATTOIR OF LANGKE REMBONG SUB-DISTRICT, MANGGARAI REGENCY, INDONESIA

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ABSTRACT

A research was carried out at the Ruteng's Abattoir with the aim of: 1) finding out the amount of income earned by pig slaughterers, and 2) knowing the financial feasibility of the pig slaughtering business. The research method used is a survey. Sampling for pig slaughterers was carried out using simple random sampling. Since the number of pig slaughterers was only 7 people, all of them were taken as representative respondents. The analytical method used is income analysis and feasibility analysis of the pig farming business. The research results show that the income of pig slaughterers at the Ruteng's Abattoir is IDR 48,053,738/month. The results of the financial analysis illustrate that $B/C=0.60$, BEP unit was 1,903.10 kg, BEP IDR was IDR 216,120,109, and $R/C=1.60$. The conclusions are the pig slaughtering business at the Ruteng's Abattoir has been able to generate income for slaughterers and financially feasible.

KEY WORDS

Abattoir, butcher, financial feasibility, income, pig, pork.

Pork demand in Manggarai Regency, East Nusa Tenggara Province (NTT), Indonesia, relatively high. A high demand of pork in this area was indicated by the increasing number of slaughtering pig and pork production each year. One area of Manggarai Regency with a high number of pigs and pork production was in Langke Rembong Sub-district.

Regarding data from BPS Manggarai (2021), population of pig in Langke Rembong Sub-district was very high comparing with population of another small livestock. It was reported that in the year of 2018 the pig's population reached at 3,411 heads, then, in 2019 it was increased to 5,103 heads, and in 2020 it was decreased to 5,063 heads.

Institution of Animal Husbandry in Manggarai Regency reported that in 2020 there was 2,404 heads of pig slaughtered at Ruteng's Abattoir and $\pm 9,616$ heads of pig were slaughtered outside of Ruteng's Abattoir. Further, in 2021, number of slaughtering pigs at Ruteng's Abattoir reached at 2,351 pigs and $\pm 9,404$ pigs were slaughtered outside of the abattoir. It was also reported that in 2020 the pork production sold by butchers in the abattoir reached at 405,675 tons. However, in 2021, the pork production decreased to 369,731.25 tons cause of African Swine Fever (ASF) virus.

One effort to fulfill consumer's demand of pork in Manggarai Regency was encouraged by butchers' business. The butchers' business of pork runs by activities of slaughtering pigs at Ruteng's Abattoir. The activities of the abattoir were needed as a public facility to provide a healthy and feasible of meat, particularly pork, for the community. The activities were necessary to fulfill the community needs for meat as a kind food (Lawu, 2014).

However, although the production of pork by the butchers was relatively high, there was limited information provided in relation to the butchers' business include the business income and its feasibility.

The research problem formulation was how much income that the pigs' butchers gained at Ruteng's Abattoir; and whether the pigs' butchers business at the abattoir financially feasible or not yet. The research objectives were to know the income gained by the pigs' butchers in Ruteng's Abattoir and to evaluate the financially feasibility of the business.



METHODS OF RESEARCH

The research was conducted in six months at Ruteng's abattoir. The research method used was survey. Method of selecting sample was simple random sampling to select the pigs' butchers. Actually, there were only seven pigs' butchers at the abattoir, therefore all butchers were taken as representative respondents.

Data comprise two kinds of data namely primary and secondary data. The primary data were obtained based on observation and interview. The interview was held based on prepared questionnaires. Then, the secondary data were obtained from governmental institutions such as Institution of Animal Husbandry and Statistic Center Bureau of Manggarai Regency.

The data obtained were analyzed based on income analysis as described as follow: 1) Analysis of income: Income of the pigs' butchers can be known by applying income analysis refers to Soekartawi (2002) with the next formulation: $\pi = TR - TC$, where: π = total income, TR = total revenue, and TC = total cost; 2) 2. Analysis R/C: Suratiyah (2006) stated that R/C is a ratio between total revenue and total cost. The R/C can be analyzed based on the following formulation: $R/C = TR / TC$, where: R/C = revenue cost ratio, TR = total revenue, and TC = total cost; and 3) Analysis of feasibility: a) Analysis of benefit cost ratio (B/C). Benefit Cost Ratio is counted based on a formulation as formulated by Freddy (2006): $B/C = TB / TC$, where: B/C= benefit cost ratio, TB = total benefit, and TC = total cost; and b) Analysis of break-even point (BEP). BEP of the pigs' butcher business can be done based on a formulation as stated by Ibrahim (2009) as follows: $BEP\ unit = FC / (P-VC)$ and $BEP\ price = FC / P - (VC/S)$, where: FC= fixed cost, P = price per unit, VC = variable cost per unit, and S = selling volume (IDR).

RESULTS AND DISCUSSION

Ruteng is a town as capital of Manggarai Regency in Nusa Tenggara Province, Indonesia. Ruteng is located in Langke Rembong Sub-district. Ruteng has two abattoirs. First, pigs' abattoir and cattle's abattoir. The pigs' abattoir is located at Tuke, Village of Compang Tuke in Langke Rembong Sub-district. Second, the cattle's abattoir is located at Village of karot, Langke Rembong Sub-district.

Ruteng's Abattoir for pigs was established in 2016. Its capacity is 500 heads of pigs/day. However, number of pigs slaughtered at Ruteng's Abattoir is less than 500 heads of pigs.

The abattoir has a building with its width is 1,000 m². It has 1.2 ha of land. The abattoir also has area for sheltering the pigs before slaughtering; include water installation and waste management.

The abattoir was established to produce hygienic pork and its products for consumers by applying process of ante mortem and post mortem. Additionally, in order to overcome air pollution, the management of abattoir concerns about air quality surround the abattoir by planting some shrubs and plants.

The abattoir plays important roles to fulfill consumer needs for pork, jobs for butchers, and support the farmers in relation to pigs' production in Manggarai Regency, particularly in Langke Rembong Sub-district. The abattoir also functioned as a source of income either for the butchers or local government. Therefore, it is necessary to run the business as profitable and feasible, financially.

Characteristics of respondents were explained as follow based on age, gender, level of education, main job, and household member.

Average age of the pigs' butchers at Ruteng's abattoir as respondents was 48.14±5.81 years with its coefficient variation was 33.81%. It means, there was 66.19% of the pig's butchers ages were between 42–54 years old, while 33.81% was less than that of 42 years old or more than that of 54 years old. It means, most of the butchers were in productive age. Since the butchers were in productive age, they still stronger physically to do their jobs.



Saediman (2012) mentioned that level of work productivity of a person will increase along with the increasing of age, but the work productivity will decrease when the person was getting older. Therefore, in relation to the butchers' age, it can be stated that the activities of the pigs' butchers can be done productively.

The pigs' slaughtering business at Ruteng's Abattoir was run by men. This fact due to the slaughtering activities was heavy, such as in processing of transportation the pigs include slaughtering the pigs, etc.

Most of the pigs' butchers at Ruteng's Abattoir has a high level of education since it covers 85.71% graduated from Senior High School. Further, 14.29% of the pigs' butchers were graduated from Junior High School. All butchers never joint any non-formal education in relation to their activities through extension, training, etc. This condition influences their mind and action to run the business. Ariyanto et al. (2021) stated that an individu with a high level of education will have different attitude, opinion, and perspective comparing with the other individual with low level of education.

Main job of a person is the main source of income. The main job of the pigs' butchers at Ruteng's Abattoir was as butcher. The butchers also are the pork's sellers in local markets at Ruteng. Activities of selling pork done just after slaughtering the pigs. This fact as same as stated by Magal et al. (2023) that all butchers in the pigs' abattoir in Ruteng also work as the pork's sellers in local markets at Ruteng.

The household head has responsible to fulfill the household members' needs. Concerning the pigs' butchers at Ruteng's Abbatoir, number of the household member was categorized in two categories. The first category has 1÷2 members that cover at 14.29%, while the second category has 3÷4 household members that cover 85.71%. It means that most of the butchers have 3÷4 household members. This fact was as same as stated by Ahmadi (2007) that number of household member can be categorized as big number if >5 household members, and small number of household members for < 5 persons.

The result of analysis showed that most of the pigs' butchers (42.8%) at Ruteng's Abattoir were well-experienced. The longer the experience of doing a business, the better the business will be managed both technically and economically. This condition refers to Tukan (2019) reported that business experience will be helpful for a businessman to overcome constraints and to face risk and uncertainty.

The main objective of a business is to gain a maximum profit. The objective of the pigs' butcher business was to gain the main profitable income in order to fulfill their daily needs. Kojo et al. (2014) stated that pigs' farm was a source of farmers' income.

Day of slaughtering pigs was a day that the butchers slaughter the pigs at Ruteng's Abattoir. The day of slaughtering pigs was not routine since the pigs were not slaughtered every day in a week. The butchers will slaughter the pigs if all pork that produced the day before were sold out.

Commonly, the pigs slaughtered at the abattoir were crossbred of Duroc and VDL, both boar and female pigs. Average of boar's life bodyweight was 63.50 kg, and average of the female pigs' life bodyweight was 59.50 kg. Price of the pig was depending on the pig's life body weight (Osak, 2020).

Result of analysis showed that average cost of buying boar was IDR 3.127.380.95/head and average cost of buying female pig was IDR 2,880,952.38/head. Further, the average cost of providing pig at Ruteng's Abattoir was IDR 3,004,166.67/head and total cost of providing pigs was IDR 78,649,083.40/month/butcher.

Average of slaughtering number of pigs at Ruteng's Abattoir was 2,199 heads/year comprises boars were 1,351 heads/year and female pigs were 848 heads/year. Then, number of slaughtering pigs was 183.25 head/month and average number of slaughtering pigs was 26.18 heads/month/butcher consist of boars at 16.08 heads/month/butcher and female pigs at 10.10 heads/month/butcher. The pigs' slaughtered products at the abattoir were pork, ribs, head, and edible non carcass.

Most of labor source in a small scale farm was family labors consist of husband, wife, daughters, and sons. Sometimes in a busy season, the farmers hire some labors from outside of the family. Regarding labors, the pigs' butchers at Ruteng's Abbatoir used family



labors, particularly father and son. Average number of family labor used at the abattoir was 2 labors consist of father and son. The father was the butcher. Average of Daily Man Work (Hari Kerja Pria called HKP) at the abattoir reached at 150.12 HKP/year.

Activities of labors in slaughtering pigs business were to buy the pigs, to transport the pigs from the farmers to the abattoir, to slaughter the pigs, to process the slagughtered pigs into carcass and non carcass, to clean the products, include to sell the products to fulfill market demand. Labors participated in those activities were not hired.

There was some equipment used in slaughtering process. The equipment must hygiene to fulfill requirements of health and food safety. The equipment also must fix to the slaughtering process, so the process will do easily to produce safe and quality products.

The equipment such as machetes, knives, and cutters needed for slaughtering and carcass process. The other equipment was butchers, meat scales, plastic bag, and water hose. Average cost of the equipment was IDR 74.3212,6. The economical age of the equipment was five years.

Feed is the important input in production process that covers most of the production cost. Feed is necessary to fulfill the pigs needed either for growth, production, reproduction, and maintenance (Hardyastuti, 2011).

There were some kinds of agricultural waste products used as feed in Langke Rembong Sub-district. The feed source was banana stem, rice bean, corn bean, and left over of food. The pigs were fed twice a day, ether in the morning and in the afternoon. Ration was simple mixed prepared by mixing all of the agricultural waste as feed.

Commonly, the agricultural waste was cooked before using for feed. The pigs were sheltered at Ruteng's Abattoir for two days before slaughtering. Therefore, the feed was needed for two days during the shelter period of the pigs.

Production cost is a compensation cost gained by the owner of the inputs. Therefore, in relation to the butchers, the production cost was the cost spent by the butchers to provide or to rent inputs used in the production process. The production cost comprises fixed cost and variable cost.

The fixed cost is a depreciation cost of the slaughtering equipment. Result of analysis showed that average value of the depreciation cost of the equipment using for slaughtering the pigs. The average of the depreciation cost was IDR 74,321.60.

The variable cost comprises the costs for buying pigs, transportation, plastic bags, retribution, the other costs needed in the business. The result showed that the cost of buying pigs was IDR 78,649,083.40/month, the transportation cost was IDR 400,000/month, the plastic bags cost was IDR 130,000/month, and retribution cost was IDR 785,357month. Actually, the retribution was IDR 30,000/head of pig.

Total cost is cost spent for all of production process cost of a livestock farm. The total cost comprises fixed cost and variable cost (Sunarto et al., 2016). The total cost spent by the butchers at Ruteng's Abattoir was IDR 80,038762/year-.

Table 1 – Products, number of production, the products' price, and revenue

Product	Number of production	Price of product (IDR)	Revenue (IDR)	%
Pork (kg)	883,53	110,000	97,188,300	75.87
Bones (kg)	104,76	110,000	11,523,600	9.00
Non-carcass (unit)	26,19	100,000	2,619,000	2.04
Pigs' heads (unit)	26,19	200,000	5,238,000	4,08
Legs (kg)	104,76	110,000	11,523,600	9.00
Total Revenue			128,092,500	100.00

Source: Primary data analyzed (2023).

Soekartawi (2010) stated that revenue is a value obtained based on number of products times the price product. The average revenue gained by the butchers at Ruteng's Abattoir was IDR 128,092,500/month. The revenue was gained by selling some products namely pork was, bones was, the pigs' heads, legs, and non-carcass. Pardede (2015) reported that the revenue of the pigs' farm can be gained from the pigs sold and the



transformation of pigs' value. Therefore, the higher the number of the pigs raised or the higher the number of slaughtered pigs at an abattoir, the higher the revenue gained. Based on the number of pigs' slaughtered in a month, it was found that there were five products produced. Number and price of products produced were shown on Table 1.

Income is a value gained from the difference of revenue and total cost spent in a production process. Value on an income influenced by a number of products produced. In relation to the butchers' income at Ruteng's Abattoir, the result of analysis showed that the income of the butchers reached IDR 48,053,738/month. Further, the income gained by the butchers of the pig was IDR 1,835,513,00/head. Description of average production cost, revenue, and income of the pigs' butchers at Ruteng's Abattoir can be seen on Table 2.

Table 2 – Average of production cost, revenue, and income of the pigs' butchers at Ruteng's Abattoir

No.	Description	In-cash	Total	%
1	Production cost:			
	Depreciation cost of equipment	74,321.60	74,321.60	100
	Total Fixed Cost	74,321.60	74,321.60	100
	Variable cost:			
	Buy pigs	78,649,083.40	78,649,083.40	98.35
	Transportation cost	400,000	400,000	0.50
	Plastic bags' cost	130,000	130,000	0.16
	Retribution	785,357	785,357	0.98
	Total variable cost	79,964,440.40	79,964,440.40	100
	Total production cost	80,038,762	80,038,762	
	Selling/month	128,092,500	128,092,500	
2	Total revenue	128,092,500	128,092,500	
3	Income	48,053,738	48,053,738	
4	Income/head of pig	1,835,513.29	1.835.513,29	

Source: Primary data analyzed (2023).

Criteria used in financial analysis of pigs' butcher business at Ruteng's Abattoir were criteria of investment namely R/C, B/C, BEP production and BEP price. Result of analysis showed that the R/C obtained was 1.60. It means, in production process of slaughtering pigs, each IDR 1.00 spent then the butcher will gain IDR 1.60 times more than the cost spent.

B/C is ratio between benefit and total cost. The benefit gained by the pigs' butchers was IDR 48,053,738, while the total cost was IDR 80,038,762. Therefore, the value of B/C was 0.60. The value of B/C was indicated that each IDR 1,00 spent will gain the benefit IDR 0.60.

The BEP result of analysis showed that by selling product at 1,903,1 kg with its value was IDR 216,120,109, the pigs' butchers business at Ruteng's Abattoir reached the break-even point of production. It means if the production less than 1,903.10 kg the business will loss the benefit. Then, if the production was higher than that of the BEP production value, it means the business was profitable.

Table 3 – Financial analysis of the business of pigs' butchers at Ruteng's Abattoir in Langke Rembong Sub-district, Manggarai Regency

Criteria of Investment	Value of Criteria	Decision
R/C	1.60	Feasible
B/C	0.60	Feasible
BEPq (kg)	1,903.10	
BEPp (Rp)	216,120,109	

Note: BEPq (BEP quantity of product); BEPp (BEP price of product). Source: Primary data analyzed (2023)

Actually, the analysis of BEP on the pigs' farm was done by analyzing the BEP of a pig's price in IDR value and by analyzing BEP production of a pig on kg standard (Suroto, 2020). It means that the pigs' butchers business at Ruteng's Abattoir has already profitable financially. Description of financial feasibility analysis of the business of pigs' butchers at Ruteng's Abattoir was summarized as shown on Table 3.



CONCLUSION

It can be concluded that the income gained by the pigs' butcher business at Ruteng's Abattoir in Langke Rembong Sub-district, Manggarai Regency was IDR 48,053,738/month. In addition, the pigs' butcher business at the abattoir has already feasible financially.

REFERENCES

1. Ahmadi, A. 2007. *Social Psychology*. Jakarta: Rineka Cipta.
2. Ariyanto, A., et al. 2021. *Entrepreneurial Mindsets dan Skill*. Padang: Insan Cendekia Mandiri.
3. BPS Kabupaten Manggarai. 2020. *Kabupaten Manggarai Dalam Angka 2020*. BPS Manggarai, Ruteng.
4. BPS Kabupaten Manggarai. 2021. *Kabupaten Manggarai Dalam Angka 2021*. BPS Manggarai, Ruteng.
5. Dinas Peternakan Kabupaten Manggarai. 2021. *Laporan Kinerja Instansi Pemerintah (LKIP)*, Ruteng.
6. Rangkuti, F. 2006. *Riset Pemasaran*. Jakarta: Gramedia Pustaka Utama.
7. Hardyastuti, S. 2011. *Kajian biaya produksi pada usaha peternakan babi*. *Jurnal Sosek Peternakan Unibraw Malang*. 12(1):136÷143.
8. Ibrahim, Y. 2009. *Studi Kelayakan Bisnis*. Edisi Revisi. Jakarta: Rineka Cipta.
9. Kojo, R., V. Panelewen, M. Manese, and N. Santa. 2014. *Efisiensi penggunaan input pakan dan keuntungan pada usaha ternak babi di Kecamatan Tateran Kabupaten Minahasa Selatan*. *Jurnal Zootek*. 34(1):62÷74.
10. Lawu, M.R. 2014. *Gambaran pelaksanaan rumah potong hewan babi (Studi kasus di rumah pemotongan hewan Kota Semarang)*. *Jurnal Kesehatan Masyarakat*. 2(2):127÷131.
11. Magal, V.A., U.R. Lole, M.R.D. Ratu, and M.F. Lalus. 2023. *Income analysis of fresh pork business actors on different payment patterns in Langke Rembong Subdistrict, Manggarai District, Indonesia*. *Russian Journal of Agricultural and Socio-Economic Sciences*. 11(143): 172÷176.
12. Osak, O.M.V. 2019. *Analisis keuntungan pedagang daging babi berdasarkan preferensi konsumen di pasar tradisional Kota Manado*. *Jurnal Zootek*. 40(1):1÷11.
13. Pardede, S. 2015. *Analisis biaya dan keuntungan usaha peternakan babi rakyat di Desa Cigugur, Kecamatan Cigugur Kabupaten Kuningan Jawa Barat*. *Student e-Journals*. 4(3).
14. Saediman. 2012. *Pengaruh skala usaha terhadap pendapatan peternak ayam ras petelur di Kecamatan Maritengngae Kabupaten SIDR ap*. Skripsi. Universitas Hasanuddin Makasar.
15. Sarajar, M.J. 2019. *Analisis usaha ternak babi di Kecamatan Sonder Kabupaten Minahasa*. *Jurnal Zootek*. 39(2):276÷283.
16. Soekartawi. 2002. *Agribisnis Teori dan Aplikasinya*. Jakarta: PT Raja Grafindo Persada.
17. Soekartawi. 2010. *Prinsip Dasar Ekonomi Teori dan Aplikasinya*. Jakarta: PT Raja Grafindo.
18. Sunarto, E., O.H. Nono, U.R. Lole, and Y.L. Henuk. 2016. *Kondisi ekonomi rumah tangga peternak penggemukan sapi potong pada peternakan rakyat di Kabupaten Kupang*. *Jurnal Peternakan Indonesia*. 18(1):21÷28.
19. Suratiyah, K. 2006. *Ilmu Usahatani*. Jakarta: Penebar Swadaya.
20. Suroto, K.S. 2020. *Analisa kelayakan finansial usaha peternakan babi di Kabupaten Malang*. *Jurnal Buana Sains*. 22(1):65÷70.
21. Tukan, H.D. 2019. *Analisis pendapatan ekonomi rumah tangga usaha ternak babi di Kabupaten Flores Timur, Provinsi Nusa Tenggara Timur*. Tesis Magister, Universitas Brawijaya.