Analisis Biaya Transaksi Peternak Sapi Perah : Studi Kasus pada Anggota Koperasi di Kabupaten Kuningan Jawa Barat (*Analysis of Dairy Farmer's Transactions Costs: A Case Study of Cooperative Member in Kuningan, West Java*)

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Abstract
Dairy farmers are groups of people who face problems of low levels of well-being. General school of thought (mainstream) views the problem of poverty is caused by low productivity factor. The use of productivity approach in solving the poverty problem of dairy farmers needs to be supplemented by another approaches in terms of non-productivity factors. This non-productivity approach which is rarely used is transaction cost approach. Starting from this, the study is carried out by transactions cost approach. This study specifically aims to analyze the structure of the cost transaction and the factors leading to the emergence of transaction costs encountered by dairy farmers members of cooperative in Kuningan West Java. Methods to determine the structure of the transaction cost is performed by analyzing farming and the factors that affect dairy farmers transaction costs were analyzed using multiple regression analysis. Analysis of the cost transaction structure showed that the dairy farmer transaction costs consist of contract cost (3.06%), welfare cost (1.51%), maintenance of livestock resources cost (56.52%), as well as milk delivery and feed or inputs search costs (38.90%). Transaction costs to revenue ratio for credit dairy farmers is 0.0279 and the ratio for independent dairy farmers is 0.0218. Meanwhile, the ratio of transaction costs to the total cost for credit dairy farmers is 0.0160 and the ratio for independent dairy farmers is 0.0146. Afterwards, based on the results of multiple regression analysis of determinants of transaction costs, independent variable of revenue and education have significant effect on the amount of transaction costs.
Key words: transaction costs, dairy farmers, member of cooperative.

Abstrak
Peternak sapi perah merupakan kelompok masyarakat yang menghadapi permasalahan rendahnya tingkat kesejahteraan. Aliran pemikiran umum (mainstream) memandang permasalahan kemiskinan lebih disebabkan oleh faktor rendahnya produktivitas. Penggunaan pendekatan produktivitas dalam memecahkan persoalan kemiskinan peternak perlu dilengkapi dengan pendekatan lain dari sisi faktor non-produktivitas. Pendekatan non-produktivitas yang jarang digunakan adalah pendekatan biaya transaksi. Bertolak dari hal tersebut, penelitian ini dilakukan dengan pendekatan biaya transaski. Penelitian ini secara khusus bertujuan untuk menganalisis struktur biaya transaksi dan faktor-faktor yang menyebabkan timbulnya biaya transaksi peternak sapi perah anggota koperasi di Kabupaten Kuningan Jawa Barat. Metode untuk mengetahui struktur biaya transaksi dilakukan dengan analisis usahatani dan faktor-faktor yang mempengaruhi faktor-faktor yang mempengaruhi biaya transaksi peternak sapi perah dianalisis menggunakan analisis regresi berganda. Analisis struktur biaya transaksi menunjukkan bahwa biaya transaksi peternak sapi perah terdiri dari biaya kontrak (3,06%), biaya dana kesejahteraan (1,51%), biaya pemeliharaan sumberdaya ternak (56,52%), serta biaya pengiriman susu dan pencarian pakan atau input produksi (38,90%). Rasio biaya transaksi terhadap penerimaan untuk peternak kredit sebesar 0,0279 dan peternak mandiri sebesar 0,0218. Sementara itu, rasio biaya transaksi terhadap biaya total untuk peternak kredit sebesar 0,0160 dan peternak mandiri 0,0146. Berdasarkan hasil analisis regresi berganda determinan biaya transaksi, variable bebas penerimaan dan pendidikan berpengaruh nyata pada besarnya biaya transaksi.
Kata kunci : biaya transaksi, peternak sapi perah, anggota koperasi

Introduction

Food security at macro level can be defined as the ability of a nation to ensure the availibility of adequate food, both of its quality and quantity for all citizens through optimizing of locally-based resource use. While at the micro level, food security should be guaranted up to the level of the household to live a healthy and active life. Thus, the

development of food security aims to ensure the availability and consumption of adequate, safe, and high quality food and nutritionally balanced starting from national level, regional level until households level.

One of important sub-sectors to support food security is livestock. Indonesia has relatively large prospect of dairy industry development since geographical condition, ecology, and the fertility of the land in some parts of Indonesia have suitable characteristics for dairy agribusiness development. Judging from milk demand, the Indonesian society need of milk is still not well-fulfilled by the livestock subsector and the domestic dairy processing industry. Currently, domestic milk production reaches about 30 percent of the effective demand. The demand of livestock commodities as a source of animal protein is predicted to increase due to population increase and the increase of public awareness on nutrition. Resource use activities in the livestock sub-sector is one of the new sources of growth for the agricultural sector in particular and the national economy in general. In 2009, the Central Bureau of Statistics noted that the livestock sector contributed Rp. 36,743.6 billion (12.4 percent) of the total national GDP of the agricultural sector.

Dairy farming business in Indonesia is dominated by small-scale and medium dairy enterprises. According to Erwidodo (1993) in Ratnawati (2002), the average of cow ownership is 3 to 5 cows per dairy farmer and the level of business efficiency is still low. The size of dairy farmers business is caused by limited capital ownership which leads to low level of dairy farmer's revenue. Dairy farmers capital typically comes from their own capital and credit assistance. These conditions indicate that farmers are at a disadvantage and its only give little added value. This is exacerbated by the monopoly power encountered by farmers in input market and monopsony power in output markets. It causes output prices received by farmers remains relatively low, while the input prices paid by farmers tend to be expensive (Saragih, 2000). This leads to some obstacles in developing dairy farmers and most of farmers tend to be stagnant and not moving out of poverty.

General school of thought (mainstream) views the problem of poverty is caused by low productivity factor. This thought is very dominating in development in Indonesia, so most of programs to improve the welfare of farmers use more productivity approaches such as providing additional capital to boost production. The use of the approach in solving the poverty problem of dairy farmer needs to be supplemented with other approaches in terms of non-production factors. This non-productivity approach which is rarely used is generally defined as the costs paid by farmers apart from the production cost. Transaction costs in economic activity is difficult to avoid, causing economic stress for the farmer because of the transfer of a considerable surplus from the farmer households to other parties. Transaction costs would directly reduce farmers revenues (benefits). Although it is difficult to avoid, transaction costs need to be reduced to achieve an efficient level, so that the benefit received can be maximized.

According to Directorate General of Livestock of the Ministry of Agriculture (2009), in 2008 West Java is the largest milk producing centers in Indonesia after East Java. Approximately 40 percent (30,714 households) Indonesian dairy cattle population in West Java and 32 percent (242,142 tons) national fresh milk production reaching 1 million to 1.2 million liters of fresh milk per day produced by West Java (Directorate General of Livestock of the Ministry of Agriculture and GKSI/Joint Indonesia Dairy Cooperatives 2008). Kuningan (4%) is one of the areas that contributes significantly to the amount of milk production in West Java. In addition, historically Kuningan is one of developmental pathway milk producers and consumers in West Java (Kuningan-Cirebon line). In Cigugur district of Kuningan, dairy farming is the most dominant of a livestock resources based business activity and it has its own characteristics in terms of area, production processes, distance to access markets, and business capital.

Dairy farmers depend on livestock resource management which is private property, thus allowing farmers to manage their livestock resources efficiently. Then, the market structure faced by dairy farmers is the monopolistic market at input market and monopsony power at output markets, so the cooperative role in determining the price of milk is dominant compared to dairy farmers. This is not only due to the mastery of information but also social relationships (patron-client) are more strongly formed between farmers and cooperatives. These factors influence the revenue rate, production costs and transaction costs paid by farmers, which in turn will affect the lives and farmers' welfare.

Based on the above, the first issue that will be examined in this study is how the development of the performance of the dairy farmer members of the cooperative. The second problem is whether the variables that affect the revenue of dairy farmers?. The third problem to be studied is how the structure of production costs dairy farmers?. Four issues that

will be studied is how the structure of transaction costs dairy farmers and the factors that contributed to the transaction costs for dairy farmers. The specific objectives of this study are to analyze the structure of transaction costs and the factors that contributed to the cost of the transaction.

Materials and Methods

The research was conducted to dairy farmers joining cooperative at Cigugur in Kuningan West Java, namely at KSU Karya Nugraha. This study was carried out through several stages: 1) pre-survey, 2) preparation of proposals; 3) field survey; 4) research, data entry and data processing, and 5) thesis writing which was implemented in August 2012 until January 2013. This study uses primary and secondary data. Primary data include revenues, production costs, and transaction costs dairy farmers cooperative members. Primary data were obtained through direct observation in the field, filling the questionnaire by respondents consisting of farmers and interviews with economic actors in addition to dairy farmers. Secondary data were collected on the number of dairy farmers development data, ownership of capital dairy, the number of dairy cows and milk production as well as institutional cooperative obtained from the relevant authorities. Direct observation in the field is needed to determine the situation and conditions in the field and study of literature is a deepening of important information related to the research.

Research site is selected purposively by using sample unit is dairy farmers comprising 60 respondents. Respondent retrieval techniques used in this study is stratified random sampling by category of capital ownership status of dairy cows and then grouped again based on its business scale. The population are dairy farmers who are members of KSU Karya Nugraha.

The research method used is a case study about revenue, production costs, and transaction costs of dairy farmers joining cooperative. Performance analysis of the development of dairy farmers of cooperative members is done through the development approach of the performance of dairy farmers of cooperative members by comparing the change in the number of farmers, capital ownership, the number of dairy cows and milk production from year to year to the farmers. The data obtained will be analyzed and described descriptively. Revenue rate, cost of production and transaction costs were analyzed using analysis of farming. Estimators variable of dairy farmers revenue with independent variable (Y) of transaction costs to revenue ratio are analyzed by tobit regression analysis using STATA software while the transaction cost determinants of multiple regression analysis using the SPSS software.

Size and limitation of the data being used is:

1. Farmers in question in this research is a person who has a major livelihood farming with the main commodities of dairy cows and spend the most time to perform these activities.
2. Independent farmers is a person who do not follow or do not have the credit for the purchase of dairy cattle in carry out production activities and gets the full service of cooperatives in the provision of production inputs.
3. Credit farmers is s person who have credit for the purchase of dairy cattle in carry out production activities and receive full service from the cooperative in the provision of production inputs.
4. Scale size of dairy farmers are organized into small-scale (less than 4 cows), medium-scale (4-7 cows), and large-scale (more than 7 cows).
5. Size is used for revenue, production costs and transaction costs are rupiah each day per animal unit (Rp/day/animal unit).

Results and Discussion

Analysis of Performance Development of Cooperative Members

The number of dairy farmers joining Karya Nugraha KSU in 2008 is 788 farmers and it was was reduced to 746 farmers in 2011 resulting the decrease of farmers in average of 1.78% annually. While the number of dairy cows in 2008 is 2,157 covering as many as 1,238 of lactating cows with milk productivity of 8.13 liters / day and in 2011 increased to 3,044 cows, which means an increase in the number of dairy cow population on average 9.71 % per year and increase milk production an average of 10.93% per year from 2008 as many as 3,672,158 liters. However, the percentage of lactating cows from year to year is decreased by an average of 1.55% with dairy milk productivity is also declining at an average of 6.26% per year from 2009 (9.51 liters / day) and still under relatively standard (<13 liters / day). Meanwhile, credit farmers tend to increase on average 6.67% per year from 2008, amounting to 20 farmers.

Milk productivity of dairy cows is still low and the percentage of lactation cows decreased demonstrate performance of dairy farmers cooperative member are not optimal. Low productivity of milk showed that maintenance treatment of dairy cows needs to be improved and the percentage decrease in the number of lactating cows showed the lack of attention to the importance of the ratio of the number of management

arrangements for lactating cows to unproductive cows, reproductive management of dairy cows and replacement stock management (surrogate mother).

Analysis of Revenue Structure of Dairy Farmers Business

Source of revenue for dairy farmers business consists of cash revenue and non-cash revenue. Cash revenue is obtained from the sale of milk to the cooperatives, livestock sales, and sales of products. Side products are a source of revenue from the sale or use of manure and sacks. While non-cash receipts consist of milk for consumption calf value, the value of milk for family consumption, the value of fertilizer that is used for farmers farms, including the value of used sacks to find grass or manure placeholders.

The average total revenue of dairy farmers each day per animal unit is Rp. 34,149.61 or 81.16% of total revenue derived from dairy farmers cash revenue, while the rest comes from non-cash revenue of 18.84%. Sales of milk to cooperative contributes for 68.87%, 12.10% for sales of cattle and sales of sacks of 0.19%, the value of milk for consumption calf is 15.80%, the value of milk for family consumption by 0.61%, the value of the used sacks is 0.22% and manure value is 2.21% of the total revenue. Based on the real difference test, the average daily revenue of dairy farmers who have loans (Rp 34,483.66) and the independent farmers (Rp 33,815.55) is not significantly different. However, the average daily income of credit farmers are more than independent farmers. This illustrates that credit farmers give more attention on his efforts to get more revenue using sources of cash revenue and non-cash revenue that they have.

Revenue Model of Dairy Farmers

Tobit regresion analysis of estimator variable of revenue based on the ratio of transactions cost to revenue (Y) by the method of maximum likelihood (ML) can be seen at table 1. Independent variables of age (α = 5%) and scale (α = 10%) has negative parameter value and real significant. Dairy farmers' age factor and business scale influence their revenue. This is due to increasing age, farmers will increase their knowledge and experience as well as more mature in making decisions related to the production process so as to increase revenue and minimize costs. In addition to increasing production output quantity received, increased business scale also affects the transaction costs due to the larger business scale led to the low percentage of the average cost for the components of transaction costs. Based on business scale both independent farmers and credit farmers, generally indicates that larger business scale will cause smaller transaction costs. Large business scale have lower transaction costs than small and medium-scale enterprises.

The independent variables of education and experience have negative parameter although it is not real significant. This is as expected due to the improvement of farmers' education and experience indicates the increasing knowledge and skills of farmers so as to increase revenue and minimize transaction costs.

Free variable Dummy of capital and labor is positive. This means that according to expectations that credit farmers' revenue will be less than independent farmers because the first farmers have greater transaction costs than the latter. It is indicated by venture capital dummy variable coefficient which is positive for 0.0010 which is significant at the 75 percent confidence level. Meanwhile, the increasing number of workers will increasingly lose revenue due to the increase of labor costs. The low level of confidence in some of the estimator variables in the revenue model based on the ratio of costs to revenue transactions shows that farmers in the region generally tend to have the same characteristic in dairy farmers business.

Table 1. The Results of Tobit Regression Test of Revenue Estimator Variable based on The Ratio of Transaction Costs to Dairy Farmers Revenue

Variable	Coefficient	Standard of error	t	P > |t|
Age	-.0000986	.0000481	-2.05	0.045
Education	-.0003104	.0006108	-0.51	0.613
Experience	-.0000319	.000079	-0.40	0.688
Dummy venture capital	.001032	.0008372	1.23	0.223
Business scale	-.0014218	.0007847	-1.81	0.076
Labor	.0011669	.001283	0.91	0.367
Constanta	.0061946	.0024206	2.56	0.013
/Sigma	.0029988	.0002782		

Analysis of Production Cost Structure of Dairy Farmers Business

Structure of production costs include variable/non-fixed cost and fixed costs. Dairy farmers variable costs include the cost of dairy feed concentrates, forage feed costs, and the cost of medicines, vitamins, minerals, health care and artificial insemination. Fixed costs consist of labor costs, the cost of building and land tax or land rent, electricity, and water, cages depreciation costs, equipment depreciation costs, depreciation costs of the female cow and cooperative membership fee.

The average cost of production of dairy farmers each day per animal unit is Rp. 54,534.94. Based on total production cost, variable production costs (Rp 40,800.15/day/au) is 74.43% and the remaining 25.57% are fixed production costs (Rp 14,014.67/day/au). Feed costs contributes greatly to the production expenses. Cash costs amounted to 31.70% of concentrate feed and forage cost value used by 42.52% so the cumulative costs incurred for the cost of feed is 74.22%. In addition, the cost of medicines, vitamins, minerals, health care and artificial insemination is 0.21%. Value of labor costs incurred also contributes greatly to the total cost of production which is equal to 18.33%. Percentage of the average cost of property tax / rent of land, electricity and water accounts for 0.42%, 0.28% of depreciation cage costs, 0.06% of equipment depreciation costs, lactating cows depreciation costs of 2.58% and cooperative membership fees and livestock loans amounting to 3.90%. It is clear that in general dairy farmers in KSU Karya Nugraha have large production costs at the component cost of concentrate feed and forage as well as labor costs. Based on the real difference test, the average daily production cost per animal unit among credit farmers (Rp 59,115.91) and the independent farmers (Rp 49,953.96) is significantly different. This is due to differences in costs of production in dairy farmers, especially for certain input components such as cost of concentrate feed, forage, and wage labor.

Analysis of Transaction Cost Structure of Dairy Farmers Business

Transaction costs is a concept that describes the exit fee when transactions outside production costs. The market shows that the exchange was not only takes into account how much money is spent to produce a product but also have to calculate how much it costs to be incurred to conduct transactions or exchanges. If we try to calculate the selling price of fresh milk in the classical theory we'll calculate the cost of production which includes the cost of labor, capital, inputs, and technology. While transaction cost theory explains that there are actually other costs to be incurred in selling the system namely cost to transact.

Based on the analysis of transaction cost, transaction cost structure of dairy farmers in KSU Karya Nugraha consists of fixed costs and non-fixed costs. Fixed transaction costs is in the form of contract costs and the cost of welfare funds for cooperatives members and their animal, while non-fixed transaction costs include the costs of livestock resources maintenance and milk delivery as well as dairy feed search or production inputs.

The average cost of transaction of dairy farmers per unit per day is Rp. 849.88. Average transaction costs incurred by credit farmers each day per animal unit is Rp 961.97. This cost is higher than independent farmers' transaction costs Rp 737.80. It is because the transaction costs of credit farmer contain contract costs arising from livestock credit application process. Based on the business scale, generally the larger the business scale the transaction costs incurred farmers tend to be smaller.

Percentage of non-fixed transaction costs contribute greatly to the total transaction cost that is equal to 95.43 percent and the rest by the fixed transaction costs. Percentage of maintenance costs of livestock resources accounts for 56.52 percent and the cost of fresh milk delivery and feed or inputs search for 38.90 percent of the total transaction cost. This can be explained because of the size of the transaction costs for the maintenance of livestock resources is determined by the condition of dairy cows are kept, the amount of incentives provided and the frequency of maintenance livestock resource service while delivery costs fresh milk and feed search are determined by productivity and milk production, frequency and costs incurred to send fresh milk and feed search or production inputs.

Table 2. Components of Dairy Farmers Transaction Costs

Farmers	Business scale	Sources of transaction costs (Rp/day/au)				
		Contract	Welfare fund	Resource mintenance	Milk delivery & feed search	Total
Credit	Small	94.85	21.26	888.89	357.14	1362.14
	Medium	50.05	10.09	493.83	348.54	902.52
	Large	26.71	4.67	591.13	206.48	828.99
	Average	52.07	10.69	582.38	316.83	961.97
	Percentage	5.41	1.11	60.54	32.94	100.00
Independent	Small	0.00	23.25	476.19	289.80	789.24
	Medium	0.00	10.74	259.74	414.21	684.69
	Large	0.00	5.12	500.00	264.25	769.38
	Average	0.00	15.00	378.35	344.45	737.80
	Percentage	0.00	2.03	51.28	46.69	100.00
Total average		26.04	12.84	480.37	330.64	849.88
Percentage		3.06	1.51	56.52	38.90	100.00

Note: au = animal unit

This is consistent opinion of Williamson (1996), he said there are three important transactions characteristics that affect the amount of transaction costs, namely: 1) uncertainty, primarily related to the production, supply, demand, price fluctuations, climate, livestock conditions, and conditions in the field , 2) the frequency, depending on the circumstances and production capabilities. Agricultural products, livestock, fisheries, greatly depend on the season. Transactions on high productivity or high milk production is different from the transaction on low productivity or low milk production, and 3) specificity, which includes site specifity, physical asset speficifity, human asset specifity. Specific asset restricts certain activities which have limited transactions.

Table 3. Average Daily Transaction Costs Respondents Dairy Farmers

Farmers	Scale	Source of transaction costs (Rp/day/au)		
		Fixed	Variable	Total
Credit	Small	116.11	1246.03	1362.14
	Medium	60.15	842.37	902.52
	Large	31.37	797.61	828.99
	Average	62.76	899.21	961.97
	Percentage	6.52	93.48	100.00
Independent	Small	23.25	765.99	789.24
	Medium	10.74	673.95	684.69
	Large	5.12	218.36	769.38
	Average	15.00	722.81	737.80
	Percentage	2.03	97.97	100.00
Average Total		38.88	811.01	849.88
Percentage		4.57	95.43	100.00

This fact is also in accordance with the opinion of Beckman (2000) who formulated the four determinants of transaction costs, which attributes the actors attached (bounded rationality and opportunism) in determining the amount of the transaction, the properties / attributes of transactions (asset specificity, uncertainty, frequency), influenced by matters relating to the governance structure (market, hierarchy, hybrid, regulation, red tape), and institutional environment (property rights, contract, agreement, culture).

The average ratio of transaction costs to revenue of dairy farmers is 0.249, which means that in every revenue of Rp 10,000.00 dairy farmers transaction costs amounting to Rp 249.00. The ratio of transaction costs to revenue for credit farmers is 0.0279, which means that in every revenue of Rp 10,000.00 credit farmer transaction costs amounting to Rp 279.00. Transaction costs-revenue ratio of independent farmers is slightly lower than the credit farmers 0.0218, which means that in every revenue of Rp 10,000.00 independent farmers pay the transaction costs of Rp 218.00. This ratio shows that the credit farmers have to pay greater transactions costs than independent farmers. Component that differs them is the cost of the contract over capital resources.

The amount of the transaction costs incurred by the farmers affected by the volume of milk production sold (transaction volume). The greater the frequency and volume of transactions, the greater the cost of milk delivery and feed search. If the costs incurred by farmers in production activities is accumulated (the sum of production costs and transaction costs), we will obtain a total cost of farmers each day per animal unit who have loan of Rp 60,077.88 and Rp 50,691.77 for independent farmers. Transaction-cost ratio of the total cost (transaction costs-the ratio of total costs) incurred in the production activities of farmers obtained credit for the value of 0.0160 and 0.0145 for independent farmers. This value indicates the proportion of transaction costs incurred by credit farmers in production activities credit is 1.60 percent of the total cost, while independent farmers pay transaction cost is 1.45 percent of the total cost. The average ratio of transaction costs to total costs of dairy farmers is 0.0153. This value indicates the proportion of transaction costs incurred by dairy farmers in production activities is 1.53 percent of the total cost. The greater the ratio of transaction costs to the total cost, the less efficient the dairy farmers since transaction costs does not affect the production of farmers.

Based on the description above, it can be explained that transactions costs of KSU Karya Nugraha cooperative members include costs to be incurred to obtain loan in the form of contract costs, costs of welfare fund for animal and cooperative members, the cost for the maintenance of livestock resources, and costs used to the location of food and production inputs. Transaction costs will result in a total cost increase. The smaller the transaction costs, the smaller the total cost. This should influence the decision of the selling price of fresh milk so that there is a correlation between transaction costs with the price of milk.

Table 4. Transaction Cost-Revenue Ratio Respondents Dairy Farmers

Component	Credit dairy farmer	Independent dairy farmer	Average
Transaction costs (Rp/day/au)	961.97	737.80	849.88
Revenue (Rp/day/au)	34,483.66	33,815.55	34,149.61
Transaction costs-revenue ratio	0.0279	0.0218	0.0249

Table 5. Transaction Costs-Total Costs Ratio Respondents Dairy Farmers

Components	Credit dairy farmer	Independent dairy farmer	Average
Transaction costs (Rp/day/au)	961.77	737.80	849.88
Production costs (Rp/day/au)	59,115.91	49,953.96	54,534.94
Total cost = transaction cost + production cost (Rp/day/au)	60,077.88	50,691.76	55,384.82
Transaction cost- total costs ratio	0.0160	0.0145	0.0153

Table 6. Result of Multiple Regression Test of Transaction Cost Determinants Variable

Variable	Coefficient	Standard error	t-value	P-value
Constants	-434.426	844.961	-.514	.609
Income	.050	.020	2.546	.014
Education level	-371.709	249.039	-1.493	.141
Dummy of venture capital	313.661	359.991	.871	.387
Business Scale	-151.848	297.457of	-.510	.612
Distance	4568.868	5803.412	.787	.435
R^2 (R Square) = 0.135				

Transaction Cost Model of Dairy Farmers

Based on the results of variance analysis with OLS (Ordinary Least Square) it can be seen that independent variables of revenue have positive parameter and significant effect on the level of confidence of 95 percent. This is as expected and significant increase of revenue will likely increase transaction costs. This is related to human characteristics that are more likely to spend more when profit or revenue earned in excess.

Coefficient of independent variables of education level is negative and significant at 85 percent level of confidence. It shows that the higher the level of education the lower the transaction costs. Increased education levels indicate increased knowledge, insight, and skills of farmers so as to minimize transaction costs.

Although not significant, the parameters bussiness dummy and the distance variable is negative while the scale variable is positive and it is according to expectations. Transaction costs are relatively higher credit farmers than independent farmers. This is indicated by a the business capital dummy variable coefficient is positive, of 313.66 is significant at 60% confidence level. In addition to increasing production output quantity received, increased business scale is also related to the lower transaction costs due to the larger-scale efforts cause to the low percentage of the average cost for the components of transaction costs.

Resolving the problem of low levels of well-being is not just enough by production approach, but it needs non-productivity approach namely transaction cost approach because transaction costs is one of the components that cause inefficiencies business for farmers. Efforts should be made to minimize the transaction costs between other farmers with increased education and business scale. Improving education is carried out by opening or providing information to farmers about the management or maintenance treatment of dairy cows, information about access to capital, the provision of production inputs, market information, improved service cooperatives and farmers through cooperatives training.

In addition to transaction costs, farmers are advised to minimize the costs incurred primarily in the production cost of dairy farmer that operating expenses are not too heavy. Farmers should increase revenue gained through increased milk productivity by improving management of maintenance, increase milk production by increasing the number of lactating cows or increasing business scale and increase revenue from other sources such as manure sales, selling bull calf / virgin males adults and culled females so that business continuity is maintained because of good business management processes.

Conclusions

Based on the description of the research, a number of conclusions can be drawn, such as dairy farmers' age factor and business scale influence their revenue. This is due to increasing age, farmers will increase their knowledge and experience as well as more mature in making decisions related to the production process so as to increase revenue and minimize costs. In addition to increasing production output quantity received, increased business scale also affects the transaction costs due to the larger business scale caused to the low percentage of the average cost for the components of transaction costs. Based on business scale both independent farmers and cerdit farmers, generally indicates that larger business scale will cause smaller transaction costs. Large business scale have lower transaction costs than small and medium-scale enterprises.

In addition, the transaction costs are influenced by the revenue and the level of education. The higher the revenue the bigger the transaction cost. This is related to human characteristics that are more likely to spend more when their profit or revenue bigger. The higher education level of farmers will also be able to reduce transaction costs

due to the increase of knowledge, insight and skills of farmers can reduce the incidence and minimize transaction costs. Results of analysis of revenue, costs of production and transaction costs in the dairy farmers business explained that independent dairy farmers business provide a higher level of welfare than credit farmers.

Based on case studies of cooperative members of KSU Karya Nugraha, transaction costs include the costs to obtain loan in the form of contract costs, welfare fund costs for animal and members, the cost for the maintenance of livestock resources, and costs used to the location of feed search and production inputs. Transaction costs will increase total cost. Smaller transaction costs will cause smaller total cost. It is supposed to influence the determination of the selling price of fresh milk at the farm level so that there is a correlation between the transaction costs and the price of fresh milk and efforts to improve the welfare of dairy farmers.

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