THE CAPABILITY OF MILK COW BREEDERS IN SEN'S THEORETICAL STUDY

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ABSTRACT

The condition of commodity the milk cow breeders have has not met the standard business feasibility. Meanwhile, to support livestock business, the breeder should utilize functional commodity in order to acquire opportunity/capability/ability to do. The development of milk cow breeding business has not been maximal. The breeders encounter capability deprivation due to the presence of regulation and business habit growing within society. If they encounter capability deprivation, the breeders would acquire capability difficultly. Sen theorized that if there an ability of functioning commodity, the capabilities (opportunities) can be achieved. Similarly, if an individual encounter capability deprivation, he/she will achieve the opportunities difficultly.

Two exogenous variables (functional commodity, capability deprivation) and one endogenous variable (capability) will be examined using Sen's theory. The effect was analyzed using regression test.

The data for individual variables was obtained using questionnaire distributed to 375 respondents. The respondents were selected randomly from milk cow breeder population existing in three villages. The villages were selected using cluster sampling out of thirteen villages in Getasan Sub District, Semarang Regency, Central Java.

The result of research showed that cow breeders had not been able to use commodity they had to achieve opportunity. The capability deprivation occurring among the breeders make them achieve the opportunity of supporting their business difficultly. The effect of breeders' capability deprivation level on their capability was more dominant than their functional commodity level. Although the effect of their functional commodity level contributes slightly to their capability, the effect of these two variables was consistent with Sen's theorization that commodity functioning was done in order to have ability to do/capability. Similarly, the effect of Breeders' capability deprivation on their capability level was also consistent with Sen's theorization that there is a correlation between capability deprivation and capability.

Keywords: functional commodity, capability deprivation, capability, Sen's theory

INTRODUCTION

The condition of milk cow breeders is described by Erwidodo (1998) based on the cows possessed with about 80% of small breeder owning less than 4 (four) cows, 17% owning 4 (four) to 7 (seven) cows and 3% owning more than 7 (seven) cows. It is such condition that generates an opinion that milk cow breeding in Indonesia is still at small-scale enterprise (2-5 cows). The motive of business is household business as side or main business, still far from technology and supported with poor business management and capitalization. In 2010, Directorate of Cattle Breeding of Animal Husbandry and Health General Directorate (2012) states that 95% of milk cow in Indonesia is managed by small breeders with 3-4 milk cows. In fact, the number of small breeders managing milk cow increases and viewed from its productivity, the production of milk per cow, on average, is only 10.5 liter/day.

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The milk cow breeders' fate is still highly dependent on Milk Processing Industry until today. It because, they have no other option to market the fresh milk they produce. It is the weak bargaining position of breeders that makes them in the condition "unwilling to live, unwilling to die". They are helpless in determining milk price, milk quality, and etc (Sinar Harapan, April 2013).

Actually, there has been a recommendation about the size of business scale the breeders should have in order to achieve business feasibility (Directorate General of Animal Husbandry, 1996). Yunasaf (2008) states that to achieve business feasibility, the cow ownership scale is 10-15 cows or on average 7-8 lactating cows. To maintain such the figure, the number of cows bred is at least 10 main cows. This number of main cow is intended to anticipate the dry period of cow (Animal Husbandry Communication Forum, 2001). In the term of milk selling, the result of field observation shows that the breeders can obtain profit from their agribusiness when the milk's selling price per liter is at least 2.1 times higher than the price of concentrate feed (Daryono *et al*., 1989). In addition, for the breeders to sell the milk with adequate selling process, there should be intervention from milk cooperatives as the mediator between IPS and breeders. Here, cooperatives should have balanced bargaining power against IPS because the breeders' milk quality meets the IPS's standard (Firman, 2010).

The real condition of milk cow breeders is, in fact, different from the duly condition. Baswir (2010) suggests that that actual condition of breeders does not occur naturally but results from the market ordering conducted by the state by law ordering. The regulation resulting in the dramatically decreasing price of domestic fresh milk (SSDN) is the issuance of recent policy on April 2009 about the abolition of import tariff of 5% into 0% based on Financial Minister's Regulation Number 19/PMK.011/2009. This import tariff abolition serves as "Fiscal Stimulus Program" as well. This condition has implication that IPS has a strong choice in determining contract price, recalling the price of imported (powder) milk is 15% lower than that of local milk (Pradana, 2010).

The policy aiming to protect IPS presumably exerted negative effect on the producers of local milk. The decreased imported tariff of milk presumably affected significantly the bargaining position of milk breeder cooperatives against IPS, thereby decreasing the IPS's purchasing price leading to the loss for the local milk cow breeders (Pradana, 2009). Considering the milk cow stakeholders' prompt, the government revoked the Financial Minister's Regulation Number 19/PMK.011/2009 and reestablished the import tariff of 5% through Financial Minister's Regulation Number 101/PMK.011/2009 about the assignment of Import Tariff over Import of Certain Milk Product (Firman, 2010).

As government expected, this policy intended to strengthen IPS could make IPS keep growing. On the other hand, it has not been able to improve the condition of milk cow breeders, because they have not gotten truly profitable selling price of milk yet. In addition, their bargaining position is still weak as well. The breeders do not really have opportunity other than following the existing commercial system of SSDN (Firman, 2010).

The condition of milk cow breeders different from the duly condition arises the question "why can it be different". The real condition of breeders including limited asset (milk cow), not meeting the standard feasibility of business scale and weak bargaining position shows that breeders have problem in using commodity. The breeders' incapability of determining milk price, milk quality, and milk market shows that there is capability deprivation among the breeders. As a result, the breeders have actually no opportunity of managing their business, particularly milk selling. Sen (1998) states that if breeders have low ability to do/capability due to low functional commodity, their capability deprivation is high.

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The breeders in Getasan Sub District, Semarang Regency have functional commodity in milk cow breeding, with non-standardized feasibility scale of business. The mean of cow ownership here is 1-4 cows. The stall available is, on average, inadequate. Green land available is narrow. The mean production is 10-15 liter milk/day (Triharyanto *et al*., 2014). The breeders encounter capability deprivation, in this case, by the regulations in milk marketing or feed purchasing network, and milk pricing and quality rules. Milk is largely sold to "*loper* (broker)". "*Loper*" also determines the selling price of milk/liter. The selling price refers to the milk selling price to Cooperatives and IPS. In addition "*loper*" serves as cattle feed supplier as well, with higher price than factory price. The breeders have no opportunity of buying low-price (factory-price) feed because they are bond to the agreement of milk selling price payment with the "*loper*". "*Loper*" will pay once in 10 days and during that time interval, the breeders owe for the feed to the *loper*. Feed payment will be conducted by means of cutting the milk selling result. The "loper" caters to not only feed purchasing but also drug purchasing form cow. It shows that the constraint lies on milk market network and milk cow business network existing in Getasan Sub District, Semarang Regency (Devi, 2010). The presence of "loper" makes the breeders not having ability to do/capability of selling their own milk production to collector cooperatives and to IPS. Considering the condition of research location, there seems to be a non-standardized functional commodity for business feasibility and capability deprivation so that the ability-to-do is low. It is in line with Sen's theorization.

Considering the problems above, there should be a research studying the condition of functional commodity, capability deprivation and capability/ability-to-do among the milk cow breeders. Furthermore, it should study the effect of functional commodity, and capability deprivation on breeders' capability. Which one with more dominant effect, functional commodity or capability deprivation, on the breeders' capability. The objective of research is to find out whether or not there is an effect of variables theorized by Sen, functional commodity or capability deprivation, on the breeders' capability. The benefit of research is that it gives the community knowledge that the opportunity can be obtained by utilizing the commodity available and minimizing capability deprivation during managing the milk cow breeding business.

The main theory used to study capability is Sen's theory. Sen (1985, 1999) say that an individual gaining achievement should have commodity (product and service) mastery and should be able to functionalize the commodity in order to have ability to do/capability. Capability is related more to the actual opportunity available to live better (functioning) (Sen, 1995). In his writings, Sen (1985, 1992, 1999) also emphasizes that capability reflects on an individual's real opportunity/chance. Capability is practical ability, oriented more to the future, having characteristics or potencies developed. That is why capability is defined as potential level. This real opportunity refers to the presence of alternative option in the sense of opportunity existing is not only available officially/lawfully but also available effectively for the agent (actor) (Sen, 1984, 1985). Furthermore, Sen (2009) explains the relationship between functional commodity and capability, stating that commodity has value not only because it has utility but because it generates an individual's capability realization.

In capability theory, Sen also shows the relationship between deprivation and capability/opportunity. The concept of capability deprivation is actually analogized with Sen's view. In Sen's (1999) view, poverty should be considered as not only low income but also basic capability deprivation. Poverty can be identified as the lack of capability; the approach concentrated on deprivation is intrinsically important (unlike those with low income, serving as a means only). There is a significant effect of deprivation capability on real poverty, in addition to low income (income is not the only instrument in yielding

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capability). The relationship between low-income instrument and low capability is the variable that can be used in different communities, different families and event different individuals (the effect of income is dependent on capability and condition). Poverty as capability deprivation means that an individual's achievement level is lower than the one's standard minimum and very limited opportunity of getting out of poverty.

PROBLEM STATEMENT

The gap between actual and expected condition of breeders lead to following the problem statements:

1. How functional commodity, capability deprivation and capability/ability to do of milk cow breeders in Getasan Sub District, Semarang Regency?
2. In what extent do functional commodity and capability deprivation affect capability/ability to do of milk cow breeders in Getasan Sub District, Semarang Regency?

METHOD

This research was taken place in Getasan Sub District, Semarang Regency, exactly in Ngrawan, Proloboga, and Sumogawe villages. These 3 (three) villages were selected using cluster sampling technique out of 13 (thirteen) villages. The sample size was determined using Arkin & Colton's (1957) table list, at confidence interval of 95%, SE of 5%, p : q = 0.5: 0.5. The sample size consisted of 375 respondents. The sample was taken using random sampling technique and technique of collecting data used was questionnaire. Instrument validation was carried out using correlation between indicator items (coefficient of correlation). The reliability of instrument was measured using statistic Cronbach Alpha at least 0.50 (Dachlan, 2014).

The instrument of analysis used was regression analysis to find out the effect of exogenous variable on endogenous variable (Sudjana, 2003). The predictor of β parameter used was ordinary least square/OLS), in which the error has zero estimation, E (∈) = 0 (Solimun, 2002). Considering OLS, the multiple linear regression is formulated as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2$$

Exogenous variable included the Breeders' Functional Commodity (X_1) and Breeders' Capability Deprivation (X_2). The endogenous variable is Breeder Capability (Y). The indicators used for the Breeders' Functional Commodity variable were: 1) functional income, 2) functional good, and 3) functional skill. Those used for Breeders' Capability Deprivation variable were: 1) decision making ability in business, 2) ability of obtaining information, 3) ability of acquiring knowledge and skill, 4) ability of cooperating between breeders, 5) ability of accessing new technology, and 6) ability of changing breeders' bad image. Those used for Breeder Capability variable were: 1) possibility of using cattle breeding medium, 2) possibility of using communication infrastructure, 3) possibility of using education, 4) possibility of using interacting ability, 5) possibility of using cooperation, 6) possibility of using mutual trust, 7) possibility of contacting each other, 8) possibility of using mutual supporting activity, 9) possibility of using caring activity, 10) possibility of using community participation, 11) possibility of using activity of helping others, 12) possibility of using risk-taking ability, 13) possibility of using initiating ability, 14) ability of using achievement need, and 15) possibility of using openness to experience.

The hypothesis developed was "Breeders' Functional Commodity and Breeders' Capability Deprivation contribute to Breeder Capability.

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Before regression was developed, the classical assumption regression test was carried out including multicolinearity, heteroskedasticity, normality and autocorrelation. Thereafter, model feasibility test, individual (between two variables) test, and regression equation interpretation were carried out to find out the size of simultaneous effect.

RESULT AND DISCUSSION

Profile of Respondent

Most respondents are in productive age, with low education level. Their main occupation is farmer and has cattle breeding as side job. On average, the breeders have only 3 (three) cows. The green land width is, on average, 2,992.5 m^2. In rainy season, this width can suffice the green feed need for only 2-3 milk cows. In dry season, the breeders should increase it by means of buying it.

Table 1. Distribution of Respondent Profile and Research Variable

Data	category	Frequency	Percentage (%)
Age	28 – 41 years	139	37
	42 – 56 years	**163**	**43**
	57 – 70 years	73	20
Education Level	**Elementary School**	**220**	**58,66**
	Junior High School	102	27,20
	Senior High School	52	13,87
	College	1	0,27
Main Occupation	**Farmer**	**132**	**35**
	Cattle Breeder	119	32
	Others	124	33
Side Job	**Farmer**	89	24
	Cattle Breeder	**256**	**68**
Data	**Category**	**Frequency**	**Percentage (%)**
Length of cattle breeding	others	30	8
	2 - 14 years	127	34
	15 – 27 years	**185**	**49**
	28 – 40 years	63	17
Number of cow Owned	**1 – 3 cows**	**194**	**52**
	4– 5 cows	131	35
	6 - > 9 cows	50	13
Green land width	**250 - 3.499 m^2**	**264**	**70**
	3,500 – 6,749 m^2	93	25
	6,750 – 10,000 m^2	18	5
Breeders' functional commodity level	High	56	14,9
	Medium	**166**	**44,3**
	Low	153	40,8
Breeders' capability deprivation Level	**High**	**246**	**65,6**
	Medium	98	26,1
	low	31	8,3
Breeder capability level	High	57	15,2
	Medium	134	35,7
	Low	**184**	**49,1**

Sources: Result of primary data analysis (2016)

The condition of breeders' functional commodity such as functional income, good and skill in fact shows that only good can be used by the breeders. The income the breeders obtain can be

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used at least for supporting their cattle breeding business. Therefore, the breeders' functional commodity belongs to medium category. The condition of capability deprivation for the abilities of making decision in business, obtaining information, acquiring knowledge and skill, cooperating between breeders, accessing new technology, changing bad image of breeders is very considerable. It can be said that this capability deprivation belongs to high category. The condition of breeders' capability is in fact less possible and even impossible to use the possibility or real opportunity they have. The breeder capability belongs to low category. The data above is presented in detailed in Table 1.

Factors Affecting Breeder Capability

The feasibility of regression model to predict the Breeder Capability level can be found out from ANOVA calculation. F-statistic value is = 316.361 with p = 0.000. F table at p = 0.05 with df 1= 2 and df 2 = 373, therefore f table = 3,02. F statistic > F table, 316.361 > 3.02. p statistic < p table, 0.000 < 0.05. It can be inferred that the regression model is feasible and can be used to predict Breeder Capability.

The result of classical assumption regression test shows that regression model: 1) is multicolinearity-free (has VIF value around 1, that is, 1.208, tolerance number close to 1 that is 0,827 and correlation between exogenous variables not close to 1, that is -0.415). 2) contains no heteroskedasticity (the intersection between predicted Y and residual Y is distributed above and below 0 (zero) on Y axis). 3) is autocorrelation-free (Durbin-Watson value ranging between -2 and +2, 1.461), 4) has close-to-normal distribution (data is distributed around diagonal line and following diagonal line direction). The result of classical regression test shows that linear regression model can be called a good model.

The variables of research were tested individually using t-test. T-statistic value of Breeders' functional commodity against Breeder Capability is 2.381, p Sig = 0.018. t table = 1.966, p table= 0.05. t statistic > t table, 2.381> 1.966. p Sig < p table, 0.000 < 0.05. It can be concluded that the two variables partially affects positively at significance level of 95%. It means that when the Breeders' functional commodity increases, the breeder capability increases as well. T-statistic value of Breeders' capability deprivation against Breeder Capability is -12.725, p Sig = 0.000. t table = ±1.966, p table = 0.05. T statistic > t table, -12.725>-1.966. p Sig < p table, 0.000< 0.05. It can be concluded that the two variables partially affects negatively at significance level of 95%. It means that when the Breeders' capability deprivation decreases, the breeder capability increases as well, and vice versa.

The result of regression test with SPSS is shown below:

Table 2. Coefficient of Regression for Exogenous Variable on Endogenous Variable

Exogenous Variable	Endogenous Variable Breeder Capability (Y)
Breeders' Functional Commodity (X_1)	0.355*
Breeders' Capability Deprivation (X_2)	-1.199*
Constant	192.688*
R^2	0.385
$F_{statistic}$	116.468*

Source: Result of Primary Data Analysis

Notes: *Significant at $\alpha = 0.005$

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The regression equation model constructed is as follows:

$$Y = 192.688 + 0.355\ X_1 - 1.199\ X_2$$

From the regression model, it can be explained that the constant is 192,688, meaning that when the score of Breeders' Functional Commodity and Capability Deprivation is 0 (zero), the Breeder Capability score is 192.688. The coefficient of regression for Breeders' Functional Commodity is 0.355, suggesting that every 1 (one) unit increase in Breeders' Functional Commodity will increase the Breeder Capability by 0.355 unit. The coefficient of regression for Breeders' Capability Deprivation is -1.199, suggesting that every 1 (one) unit increase in Breeders' Capability Deprivation will decrease the Breeder Capability by 1.199 unit.

The size of contribution is indicated with Coefficient of Determinacy R^2 x 100%. So the contribution size of Breeders' Functional Commodity and Breeders' Capability Deprivation simultaneously to Breeder Capability is 0.385 x 100% = 38.5%. The rest of 61.5% is affected by other factors. In other words, 38.5% of Breeder Capability can be explained by Breeders' Functional Commodity and Breeders' Capability Deprivation, while the rest of 61.5% is caused by other variables.

The discussion of research result shows that the breeders' commodity has not been consistent with the standard feasibility of business. The ownership of cow and green land is not comparable to breeding experience. Green land only suffices the feed requirement in rainy season only, and in dry season the breeders should buy the green feed.

In the term of functional commodity, the breeders have not been able to utilize income and skill available. Breeders' capability deprivation level is still high, particularly in their ability of making decision in business. The breeder capability level is still low including the opportunities/capabilities that can be developed to support cattle breeding business, the opportunity of using openness to experience, the ability of interacting, cooperating, mutual trust, contacting each other, supporting each other, caring about each other and using cattle breeding media.

Viewed from inter-variable effect, the size of effect of breeders' functional commodity on breeder capability is smaller than that of breeders' capability deprivation on breeder capability. It means that the contribution of capability deprivation to breeder capability is more dominant. Although the contribution of breeders' functional commodity to breeder capability is small, the effect of these two variables is consistent with Sen's theory that functionalizing the commodity will result in ability to do/capability. Similarly, the effect of breeders' capability deprivation on breeder capability is consistent with Sen's theory that there is a correlation between deprivation and capability.

The contribution size of breeders' functional commodity and capability deprivation simultaneously to breeder capability is 38.5%. It indicates that there is contribution of other variables than the two variables hypothesized.

CONCLUSION

The profile of respondent indicated by the condition of breeders' commodity is as follows:

Productive age but low education, long experience with breeding but small number of cow ownership and narrow green land. This condition of commodity shows that the breeders have not had standard business feasibility yet. Although the contribution of breeders' functional commodity to breeder capability is small, the effect of these two variables is consistent with Sen's theory that functionalizing the commodity will result in ability to do/capability.

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Breeders' functional commodity belongs to medium, breeders' capability deprivation to high, and breeder capability to low categories. These conditions show that the breeders have not had used commodity they own to gain opportunity. Similarly, the presence of capability deprivation inside the breeders makes them gain the opportunity of supporting their business difficultly.

The effect of capability deprivation on breeder capability is more dominant. Similarly, the effect of breeders' capability deprivation on breeder capability is consistent with Sen's theory that there is a correlation between deprivation and capability.

RECOMMENDATION

1. There may be knowledge of using commodity available to support cattle breeding business to improve the capability of milk cow breeders in Getasan Sub District,
2. The breeders may have ability of mitigating capability deprivation in order to have opportunity or capability of acting on, particularly ability of making decision in business.
3. The breeders may be equipped with skill of seeing the opportunity in order to utilize their commodity available to recognize the opportunity to be gained,. Thus, they can see the opportunity because they master the abilities of supporting their cattle breeding business.

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