

THE INFLUENCE OF FARMERS ENTREPRENEURIAL BEHAVIOR ON THE BUSINESS PERFORMANCE OF DAIRY FARMERS IN WEST BANDUNG REGENCY, INDONESIA

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ABSTRACT

The study sought to analyze the influence of the entrepreneurial behavior to the business performance of dairy farmers in West Bandung Regency, Indonesia. The research was conducted from January 2018 to February 2018. The importance of this research is that dairy cattle business has a great connection to upstream and downstream. Human resource development is one of the answers in the current era of globalization. Factors of entrepreneurial behavior and the business environment determine the success or failure of farmers in conducting dairy cow business activities. If dairy farmers succeed in developing a maximum dairy farming business with an entrepreneurial spirit that is developed, it can help the country by saving the country's foreign exchange, because the National milk needs are fulfilled with local milk from Indonesia. The analytical method used Structural Equation Modeling (SEM) with analytical tools data processing using LISREL 8.8. The data that was used in this research were the primary data collected through an interview process and the secondary data taken in accordance with the related institutions. The interview process took 149 people. The results of this research showed that business climate had positive and significant effect on the entrepreneurial behavior with a coefficient value of 0.25 and t-statistic of 8.87, whereas, the individual characteristics had positive and significant effect on the entrepreneurial behavior with a coefficient value of 0.55 and t-statistic of 8.56. The entrepreneurial behavior of dairy farmers had positive and significant effect with a coefficient value of 0.99 and t-statistic of 10.28, which means that the entrepreneurial behavior will improve the business performance of dairy cattle business in West Bandung Regency, Indonesia.

Keywords: business climate, entrepreneurial spirit, individual characteristics, structural equation modelling (SEM)

INTRODUCTION

Livestock plays an important role in the agricultural economy. Livestock in an area can increase the income of the local community if it gets facilities from the local government or institutions that cooperate with the farm. One of the national livestock commodities that can be relied upon to meet the demand of public consumption is dairy farm. Dairy farm produces fresh milk that becomes a staple food to fulfill daily food needs, especially for children in the growing phase. Dairy farm development in Indonesia aims to provide the need for high-nutritious animal protein such as milk. Other goal that will be achieved in dairy farm development effort in addition to increasing population, production, post-harvest and marketing of dairy farm and dairy products is to improve the welfare of farmers. The purpose of dairy farm development is to support the program of the government of milk self-sufficiency

by 2020. Matondang et al. (2012) stated that community milk consumption in 2020 is estimated to be 6 billion liters of fresh milk in a year or 16.5 million liters per day. Thus, to fulfill the milk demand, at least 1,325,000 lactation cattle (with an average production of 4,600 liters per lactation) or 2.6 million dairy cattle population will be needed in order to support production plus 2.2 million tons of concentrate feed and 33.6 million tons fiber source feed (equal to 111,000 ha of grass) or 5.4 million tons of dry matter. Milk consumed by Indonesians varies ranging from fresh milk to milk powder, yoghurt, and other dairy products. Hence, Indonesian farmers have an important role in producing fresh milk for direct consumption or as main ingredient for dairy products. It is proved by data comparing the amount of milk production, milk consumption, and import of milk in Indonesia from 2009-2016 in Table 1.

Table 1. Total production, consumption and import of milk in Indonesia 2009-2016

Year	Dairy Cattle Production (Ton)	Milk consumption (Ton)	Import of Milk (Ton)
2009	827,200	2,277,200	1,450,000
2010	909,533	2,345,000	1,435,467
2011	974,694	2,964,000	1,989,306
2012	959,700	2,699,675	1,739,975
2013	786,900	2,985,816	2,198,916
2014	800,800	3,278,145	2,477,345
2015	835,100	3,838,215	3,003,115
2016	852,951	3,989,755	3,136,804

Source: Directorate General of Husbandry and Animal Health, 2016

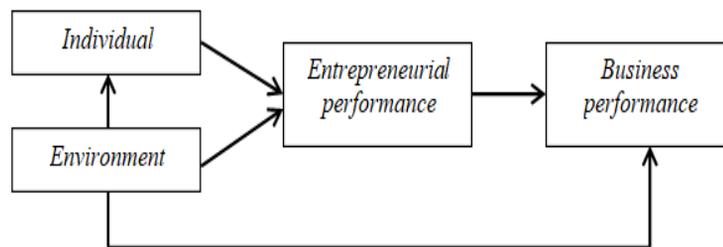
The government covers Indonesian milk consumption by importing from various countries that are centers of milk production in the form of skim milk powder, whole milk powder, butter milk powder, and anhydrous milk fat. The neighboring countries importing milk are Australia and New Zealand. One of dairy milk producers and dairy farming areas in Indonesia is West Java Province. Dairy cattle production is dominated by West Bandung Regency. Dairy cattle production in West Bandung Regency were 40,818, 41,795, 26,382 and 37,290 cattle, in 2011, 2012, 2013 and 2016, respectively (BPS 2013).

Business development on dairy farm can also open up employment opportunities. The development of dairy farms in Indonesia basically aims to increase domestic milk production to anticipate the high demand for milk. In increasing milk production there must be human resource development as one of the answers in the globalization era, which is entrepreneurial behavior. The entrepreneurial behavior factor determines the success or failure of farmers in conducting their cattle business. This is supported by Muharasatri (2013) whereas entrepreneurial characteristics have a significant and positive relationship with dairy farm performance at KTTSP Kania Bogor. Entrepreneurial behavior is very necessary in the dairy cattle business to improve the performance in West Bandung Regency. The success of dairy farms also lies on the behavior of farmers who apply the entrepreneurial spirit. Entrepreneurial behavior can support the existence of more innovative and active behavior in exploiting and developing dairy farm business potential. Good entrepreneurial behavior may improve dairy farm business performance. Thus this entrepreneurial behavior can be influenced by internal factors and external factors. Pamela (2013), it was mentioned that good individual characteristic such as work experience can affect entrepreneurial behavior. Zainura et al. (2016) stated that external factors such as external factors such as availability of inputs, counseling and training support, assistance capital and means of production, promotion and marketing support, regulatory support business, compactness between farmers and access to market information can affect entrepreneurial behavior as these led to the increase of traits such as innovation, risk-taking, persistence, responsiveness with opportunities, and independence in order to improve business performance. Based on the explanation above, it is necessary to examine the influence of individual characteristics and business climate on the entrepreneurial behavior of dairy farmers and the influence of dairy farmers' entrepreneurial behavior on the performance of dairy farming. The aims of this study were to identify

the influence of individual characteristics and business climate on dairy farmer entrepreneurial behavior and to analyze the influence dairy farmer entrepreneurial behavior on dairy cattle business performance in West Bandung Regency, Indonesia.

RESEARCH METHODS

The theory used in the research is the theory on Delmar (1996) which explains an entrepreneur in the small business sector who supports business in economic activities such as making new combinations in his business or supporting to renew his search for better. This research uses Delmar's (1996) theory because it has a proportion as a farm which is a scale of business carried out mostly by smallholders. The model of Delmar's theory (1996) can be seen in Fig. 1.



Source: Delmar (1996)

Fig. 1. Model of entrepreneurial behavior towards business performance.

The research was conducted in Lembang District, West Java because location selection was also based on several considerations that Lembang District is one of dairy farm centers in West Bandung Regency. The study was conducted from January 26, 2018 until February 26, 2018. The data used in this study were primary data and secondary data. Secondary data were obtained from offices related to dairy farms. The primary data were obtained through interviews using questionnaires to the dairy farmers and extracting information directly from the Field Extension Officer (FEO). The study population is farmers who have a dairy farm business in Lembang District. Determination of number of respondents was employed by purposive sampling technique based on certain intention and purpose. Purposive sampling technique has the criteria of farmers with a minimum of two dairy cows and not experiencing dry cage. The number of respondents in this study was taken based on SEM analysis. Hair et al (1998) said that research has four variables latent with each indicator more than three so the number of samples taken between 100 and 150 respondents. The number of respondents taken in this SEM-based study was 149 people. The operationalization of variables for farmer's individual characteristics, farmer's behavior, and farm's performance are shown in Table 2.

Data processing and data analytical methods. Data analysis used is descriptive analysis and quantitative analysis. Descriptive analysis conducted by researchers to dairy farmers in the form of open questions related to individual characteristics of dairy farmers and dairy cattle business. Processing quantitative structural equation modeling (SEM) data with the help of LISREL 8.8 analysis tools. The variables used in this study consist of latent variables and manifest variables. Latent variables are tested like exogenous latent individual characteristic (IB), exogenous latent business climate (KI), endogenous latent dairy cattle farmers' entrepreneurial behavior (PKP), and endogenous latent perspective of dairy cattle business performance (PKUP). These latent variables are affected by manifest variables. Latent variables and manifest variables are shown in Table 3.

Table 2. The operationalization of variables for farmer’s individual characteristics, farmer’s behavior and farm’s performance

Variable	Indicator	Category	Code	Measurement Level (Scale)
Individual Characteristics Zainura et al. (2016) and Puspitasari (2013)	1. The previous job experience relates to running dairy farm business	Strongly disagree – Strongly agree	X11	Likert scale, whereas score 1= strongly disagree and score 5= strongly agree
	2. Business motivation that comes from individual to learn how to increase the productivity of dairy farm business	1-5	X12	
	3. Perception about the usefulness of the dairy business for daily life		X13	
Entrepreneurial Behavior of Dairy Farmers Dirlanudin (2010)	1. Innovative in utilization of dairy cattle waste	Strongly disagree – Strongly agree	Y11	Likert scale, whereas score 1= strongly disagree and score 5= strongly agree
	2. Farmers take a risk to earn high profit	1-5	Y12	
	3. Opportunity to take advantage of milk as processed products		Y13	
	4. Farmers are independent in searching for information about dairy farm business		Y14	
	5. If livestock feed resources are insufficient, farmers have to look for new resources		Y15	
The Performance of Dairy Farm Business Keeh <i>et al.</i> (2007); Sumantri (2013); Manev <i>et al.</i> (2005)	1. The income of Dairy farm business can fulfill daily life needs	Strongly disagree – Strongly agree	Y21	Likert scale, whereas score 1= strongly disagree and score 5= strongly agree
	2. Establishing the expansion of marketing territory by cooperating with the gift store or restaurant, except the KPSBU	1-5	Y22	
	3. The benefits of the competition using conventional method are starting to be reduced in dairy farm business		Y23	
	4. Farmers have good commitment in dairy farm business		Y24	

Table 3. Latent variables and endogenous variables

Latent Variables	Manifest Variables (Indicator)	Source
Exogenous latent Individual Characteristic (IB)	1. Experience (X11)	Zainura et al. (2016)
	2. Farm business motivation (X12)	Puspitasari (2013)
	3. Perspective toward business (X13)	
Exogenous latent Business Climate (KI)	1. Input materials availability (X21)	Dirlanudin (2010)
	2. Infrastructures availability (X22)	
	3. Extension (X23)	
	4. Capital (X24)	
	5. Access to market information (X25)	
	6. Government support (X26)	
	7. Cohesiveness among farmers (X27)	
	8. Animal health center (X28)	
Endogenous Latent Dairy Cattle Farmers Entrepreneurial Behavior (PKP)	1. Innovative (Y11)	Meredith et al. (1982), Delmar (1996), Manev et al. (2005)
	2. Risk taking (Y12)	
	3. Independent (Y13)	
	4. Opportunity seeing (Y14)	
	5. Earnest pursuit (Y15)	
Endogenous Latent Perspective of Dairy Cattle Business Performance (PKUP)	1. Income rate (Y21)	Keeh et al. (2007), Sumantri (2013), Manev et al. (2005)
	2. Marketing area expansion (Y22)	
	3. Ability to compete (Y23)	
	4. Dairy farm commitment (Y24)	

RESULTS AND DISCUSSION

Socio demographic characteristics. Characteristics of respondents can be seen in Table 4. The average formal education attainment of dairy farmers is 8.46 years, implying most of them have completed their elementary school. The average family member of the respondent farmer is 3.89 persons, indicating that the farmer family is relatively a small family. The number of family responsibilities leads to harder effort of farmers to run their business well. With the existence of family responsibilities in the form of many dairy cattle impacts on the family members to help their parents or spouses running the dairy cattle business. Dairy farming experience is an average of 16.48 years. Experiences obtained by farmers come from learning process provided by family and environment. Typically, this dairy cattle business has been done by their predecessor. Long experience teaches farmers trying to do better in maintaining their dairy farming. The average ownership of dairy cattle per farmer is 5 dairy cows, indicating that they are categorized as small-scale dairy farmers.

Table 4. Characteristics of respondents

No.	Items	Average
1.	N	149
2.	Age of household head (years)	41
3.	Formal education attainment (years)	8.46
4.	Dairy farming experience (years)	16.48
5.	Number of family members (persons)	3.89
6.	Average cattle owning (heads)	5

Influence of farmer entrepreneurial behavior on dairy cattle business performance in West Bandung Regency. The influence of farmer entrepreneurial behavior on dairy cattle business performance in West Bandung Regency was analyzed using Structural Equation Modeling (SEM). This SEM model analysis is a combination of a measurement model and a structural model in which latent variables are explained by manifest variables. The measurement model explains the relationship between manifest variables and latent variables while the structural model explains the relationship between one of the latent variables with another latent variable. SEM analysis uses predetermined theory, and then the predetermined theory that has been set in research is presented in path diagram form for easier explanation. In the measurement model, it can be seen how manifest variables are closely related to the latent variables with loading factor in the path diagram. The closeness of the relationship between latent variables can be seen from the gamma coefficient (γ).

Goodness of fit. Goodness of fit is used to see model suitability in general is good or not. Thus if there is a matching value that does not fulfill then it is advisable to do model respecification. Goodness of fit on model respecification can be seen in Table 5. Based on the data in Table 5, there is still goodness of fit assessment that has not been fulfilled, namely Chi-Square (χ^2). The value of Chi-Square (χ^2) is still high while the value of goodness of fit has been fulfilled. This is not to say that the respecified model is rejected because the value of Chi-Square (χ^2) is not the main basis in goodness of fit assessment (Schermelleh-Engel and Moosbrugger 2003).

Table 5. Goodness of fit SEM model respecification

No.	GOF (Goodness of fit)	Good Fit	Result	Explanation
1.	<i>Absolute fit measures</i>			
a.	Chi-Square (χ^2)	Small value	181.24	Poor fit
b.	p-value	$p \geq 0.05$	0.00001	
c.	Non-centrality Parameter (NCP)	Small value	76.24	
	Interval		(42.79, 117.56)	
d.	Goodness of Fit Index (GFI)	≥ 0.90	0.96	Good fit
e.	Root Mean Square Residual (RMR)	≤ 0.10	0.086	Good fit
f.	Root Mean Square Error of Approximation (RMSEA)	$0.05 < RMSEA \leq 0.08$	0.07	Good fit
g.	Expected Cross Validation Index (ECVI)	Small value from value of saturated ECVI	-1.35	Good fit
2.	<i>Incremental fit measures</i>			
a.	Adjusted Goodness of Fit Index (AGFI)	$\geq 0.90, 0.80 \leq AGFI < 0.90$ is marginal fit	0.91	Good fit
b.	Non Normed Fit Index (NNFI)	$\geq 0.90, 0.80 \leq NNFI < 0.90$ is marginal fit	1.08	Good fit
c.	Normed Fit Index (NFI)	$\geq 0.90, 0.80 \leq NFI < 0.90$ is marginal fit	1.00	Good fit
d.	Relative Fit Index (RFI)	$\geq 0.90, 0.80 \leq RFI < 0.90$ is marginal fit	1.00	Good fit
e.	Incremental Fit Index (IFI)	$\geq 0.90, 0.80 \leq IFI < 0.90$ is marginal fit	1.04	Good fit
f.	Comparative Fit Index (CFI)	$\geq 0.90, 0.80 \leq CFI < 0.90$ is marginal fit	1.00	Good fit

Measurement model. Model respecification made from the suggestion contained in the modification index. Suggestions on the index modification include adding path between latent variables and manifest variables and adding error covariances between two error variances (Wijanto 2008). Path diagram after doing model respecification can be seen in Figure 2 and Figure 3.

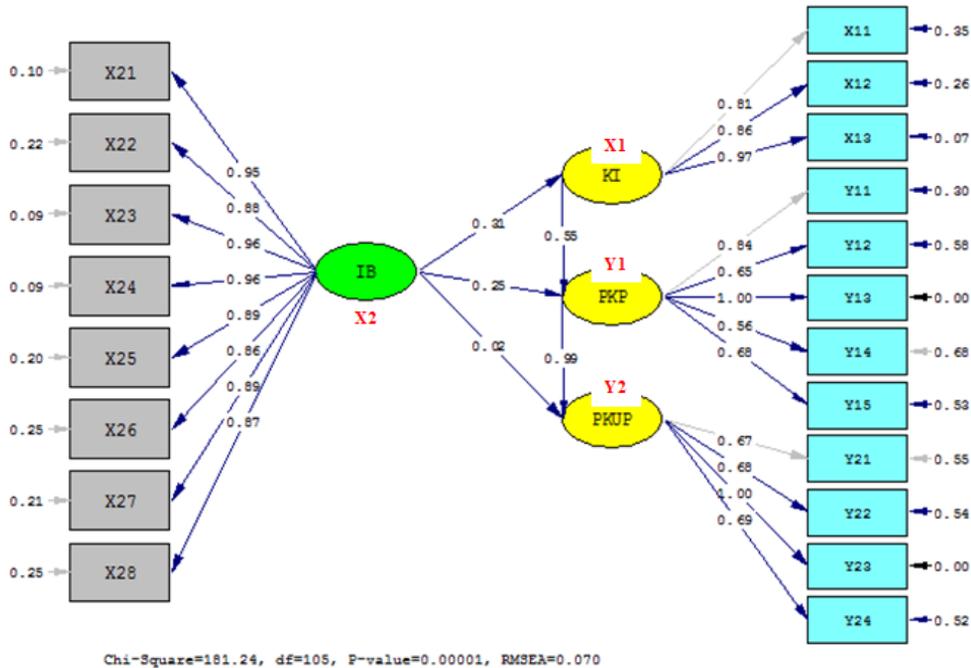


Fig. 2 Path diagram respecification based on standardized solution model of influence of farmer entrepreneurial behavior on dairy cattle business performance in West Bandung regency.

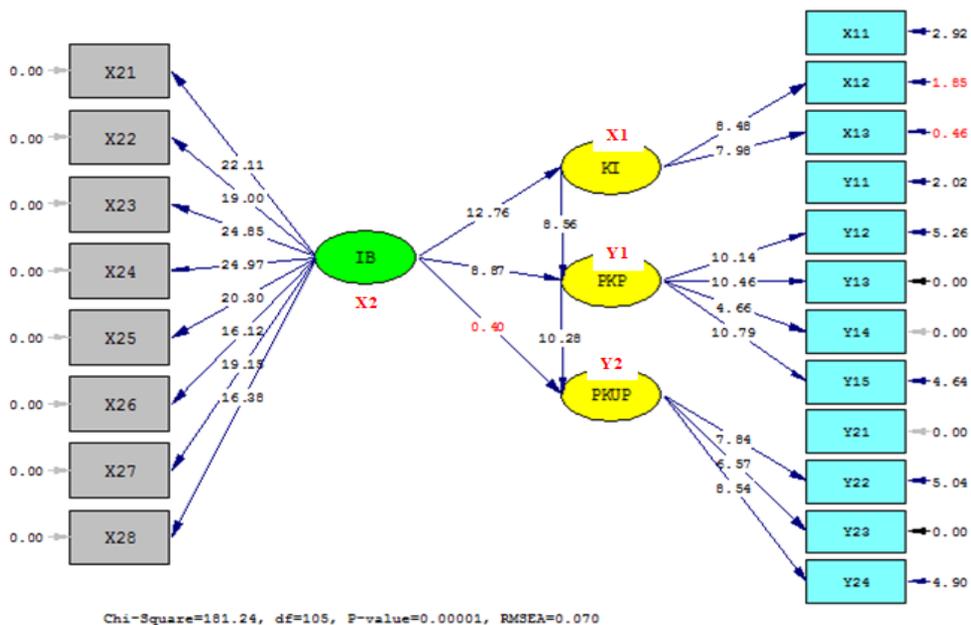


Fig. 3. Path diagram respecification based on T value model of influence of farmer entrepreneurial behavior on dairy cattle business performance in West Bandung regency.

From the result of model respecification, the standardized loading factor value and t value were obtained in Table 6. Model of suitability criteria measurement was measured based on the validity of indicator variable to latent variable. An indicator variable is said to be valid when it has standardized loading factor value greater than the tolerable factor loading limit of 0.30 (Igbaria et al. 1997) and has a t-value above 1.96 (Wijanto 2008). Based on the results of the standardized loading factor diagram and t-values diagram, it can be seen that all variables meet the validity requirement as indicated by standardized loading factor value more than 0.3 and the value of t-value above 1.96 (significant).

Table 6. Standardized loading factors and t values after model respecification

No.	Latent variable	Indicator variable	Standardized loading factors (≥0.30)	t-value	Explanation
1.	Individual Characteristics (IB)	X11	0.81		Valid
		X12	0.86	9.48	Valid
		X13	0.97	7.98	Valid
2.	Business Climate (KI)	X21	0.95	22.11	Valid
		X22	0.88	19.00	Valid
		X23	0.96	24.85	Valid
		X24	0.96	24.97	Valid
		X25	0.89	20.30	Valid
		X26	0.86	16.12	Valid
		X27	0.89	19.15	Valid
3.	Dairy Cattle Farmers Entrepreneurial Behavior (PKP)	Y11	0.84		Valid
		Y12	0.65	10.14	Valid
		Y13	1.00	10.46	Valid
		Y14	0.56	4.66	Valid
		Y15	0.68	10.79	Valid
4.	Perspective of Dairy Cattle Business Performance (PKUP)	Y21	0.67		Valid
		Y22	0.68	7.84	Valid
		Y23	1.00	6.57	Valid
		Y24	0.69	8.54	Valid

Structural model. In the structural model, it can be seen the influence between latent variables. The latent variables viewed its influence can be seen in Table 7. The structural model evaluation includes t-value, and coefficient of each parameter (Wijanto 2008). The value of t-value in each latent variable must be > 1.96 indicating a significant relationship between the latent variables. Business climate had a direct positive effect with coefficient value of 0.31 and significant with t statistic of 12.76 > 1.96 on individual dairy farmer characteristics consisting of experience (X11), farm business motivation (X12), and perspective toward business (X13). Thus if the business climate has strong value through the reflection by the availability of input materials, the availability of infrastructure, extension, capital, access to market information, government policies, cohesiveness among farmers and animal health centers, the stronger are the individual dairy farmer characteristics in developing the dairy farm business. This is in line with Zainura et al. (2016) that the business climate has a positive effect on individual characteristics because one of the business climate factors can provide additional knowledge for the farmer. Human resources for business actors can be renewed to improve business quality is very important.

Table 7. Structural model among latent variables

No.	Relationship between latent variables	Value t > 1.96	Coefficient	Explanation
1.	IB →KI	12.76	0.31	Significant
2.	IB →PKP	8.87	0.25	Significant
3.	IB →PKUP	0.40	0.02	Not significant
4.	KI →PKP	8.56	0.55	Significant
5.	PKP →PKUP	10.28	0.99	Significant

Source: Results of data processing with LISREL 8.8, 2018

Business climate had a direct positive effect with coefficient value of 0.25 and significant with t statistic of 8.87 > 1.96 to farmer entrepreneurial behavior. Business climate has a strong value reflected in the availability of input materials, availability of infrastructure, extension, capital, access to market information, government policies, cohesiveness among farmers, and animal health centers. This is reinforced by a statement stating that the business environment influences entrepreneurial behavior because the business environment exerts an influence to an individual rapidly and precisely in making decisions in his or her business (Ehrich and Billett 2004; Lans et al. 2004). The indicator variables reflecting the most dominant latent variables of business climate are extension and capital. Extension is needed by the farmers to enrich farmers' human resources starting from good welfare, extension can be done by KPSBU (*Koperasi Peternak Sapi Bandung Utara*) or Dairy Farmer Co-operative of North Bandung and IPS (*Industri Pengolah Susu*) / Milk Processing Industry in partnership with KPSBU. Capital is really needed in the dairy farm business for farm maintenance, particularly on animal feed. This is in line with Zainura et al. (2016)'s finding that the extension and training support gained can improve innovation for businesses, respond to opportunities for their businesses, and become independent entrepreneurs.

Individual characteristics had a direct positive effect with the value of 0.55 and significant with t statistic of 8.56 > 1.96 on farmers' entrepreneurial behavior. Strong values in the entrepreneurial behavior of farmers are a reflection of good individual characteristics value consisting of experience, motivation of dairy farm business, and perception of their business. Indicator in latent variable of individual characteristic is influencing the effect of entrepreneurial behavior, one of them is the motivation of the farmers to do innovation in their business. Boyd and Vosikis. 1994 (1994) suggested that the ability in good person can have strong positive impact on intention in entrepreneurial and in entrepreneurial action for satisfactory outcomes. Indicator variables reflecting the most dominant variable of individual characteristics is business perception because the farmer has his own business view of his dairy farm business. Hence, it can be said that individual characteristics are very important in cultivating entrepreneurial behavior as evidenced by its high value of 0.55. This is in line with Puspitasari (2013) that entrepreneurial behavior can be grown by individual factors such as business motivation, perception of business, and business desires.

Farmers entrepreneurial behavior had a direct positive effect on the business performance perspective of farmers while business climate had a positive effect with the coefficient of 0.02 but was not significant because t statistic of 0.40 < 1.96 to the perspective of farmers' business performance. Consequently, it can be explained that by applying innovative behavior, dare to take risks, independent, responsive to opportunities, and diligently trying to improve business performance. The results of this research are consistent with the statement of Lumpkin and Dess (1996) that an effort will be successful if the business actor has a good orientation of entrepreneurial behavior. It is supported that one of farmer entrepreneurial behavior reflection is farmer's innovativeness significantly related to agricultural business performance (Gellynck et al. 2014). Entrepreneurial behavior has a positive correlation to the perspective of business performance, the entrepreneurial behaviors consist of innovative, not afraid to take risk, and competitive (Frese et al. 2002).

CONCLUSIONS

This study showed that entrepreneurial behavior significantly affected the business performance. Meanwhile, entrepreneurial behavior was significantly affected by business climate and individual characteristics. Among the reflection indicators, perspective of business performance, entrepreneurial behavior, business climate and individual characteristics can be significantly reflected from the highest influence of the ability to compete; independent; extension and capital; and perspective towards business, respectively. In terms of individual characteristics, even though most farmers inherited their dairy farms from their parents, it is important to run their dairy farms in the perspective of business whereas running dairy farms not as business as usual, but try to gain profit. At the same time, business climate of extension and access to capital will provide environment for dairy farmers to run their dairy farms in the motive of business. Having the perspective of business and business climate of extension and access to capital will make the farmers being independent whereas they can try to find opportunities in terms of information, technology and market as one of the entrepreneurial behaviors. Accordingly, dairy farmers having entrepreneurial behavior will have the ability to compete which is the reflection of business performance.

The pro government's policies toward dairy farmers that can be done by improving the business climate or environment in which can improve the entrepreneurial behaviors of dairy farmers. As mentioned earlier, extension and access to capital had the highest coefficient as the reflection of business climate, thus, government can provide professional dairy extension officers as well as specific scheme for capital or financial access at the centers of dairy farming areas since there is still no specific extension or capital access for dairy farmers. Dairy farmers will be able to consult to the extension officers if they face problems or if they want to apply new technology or method in their dairy farming. Meanwhile, if they want to try new method or technology or new things in their dairy farming that can increase their dairy farming productivity or selling, they can have access to finance their new way of dairy farming. This improvement in business climate will be leading to increasing entrepreneurial behavior and finally will increase business performance.

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