Entrepreneurship Index Approach For Enhancing Business Performance In The Sugarcane Industry: A Innovation and Sustainability Perspective

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ABSTRACT

Sugarcane is a plantation commodity that has the opportunity to be developed and improve the welfare of farmers. The management of sugarcane plantations is carried out by the people traditionally. Many factors influence the pattern of sugarcane plantation farming including socio-economic factors of farmers, business environment, farming performance and entrepreneurial behavior of sugarcane farmers. Entrepreneurial factors determine the success or failure of farmers in adjusting to environmental changes. So this study aims to see the effect of farming performance, socio-economic factors of farmers and the business environment on the entrepreneurial behavior of sugarcane farmers. This research was conducted in 2022 in Kediri Regency. The data obtained using a questionnaire guide with a sample of 100 respondents. The data analysis used uses the SEM approach with the help of Smart PLS SEM. The research results show that a good business environment and farming performance can encourage sugar cane farmers to foster entrepreneurial behavior that is innovative, creative, diligent, never gives up and dares to take risks.

Keywords: Enterpreneur behaviour, socio economic, sugarcane, SEM

1. INTRODUCTION

Sugarcane is a plantation commodity that has the opportunity to be developed and improve the welfare of farmers. Many sugarcane farmers in East Java employ conventional farming techniques, including plowing, planting, and manual harvesting. These techniques involve the use of traditional tools and machinery, such as tractors and hand tools, for field preparation and cultivation. Furthermore, farmers in East Java commonly also use chemical inputs, such as synthetic fertilizers and pesticides, to manage nutrient requirements and control pests and diseases. However, there is increasing awareness and efforts to reduce chemical usage and promote more sustainable alternatives. Meanwhile, for irrigation which predominantly relies on water supply. Farmers employ various irrigation methods, including surface irrigation, furrow irrigation, and sprinkler systems, depending on their water availability and field conditions.

Harvesting methods for sugarcane in East Java vary. Some farmers still rely on manual labor, using machetes or knives to cut the mature sugarcane stalks. However, mechanized harvesting using specialized sugarcane harvesters is becoming more common, especially in larger-scale operations. Sugarcane farmers in East Java often form cooperatives or join existing farmer groups to collectively address common challenges, access resources, and improve their market access. These cooperatives help farmers pool their resources, negotiate better prices for inputs, and gain access to financing and market opportunities.

Farmers have adopted improved sugarcane varieties that offer higher yields, disease resistance, and better adaptability to local conditions. Through selective breeding, hybridization, and the use of biotechnology, farmers have access to varieties that offer improved productivity and profitability. But for many years in the future, the farmer must know about the sustainable farming practices to minimize environmental impact and improve long-term sustainability. This includes practices such as reduced chemical usage, organic farming methods, cover cropping, and soil conservation techniques to promote soil health and biodiversity.

From the explanation above, we know that many factors influence the pattern of sugarcane plantation farming including socio-economic factors of farmers. But on the other hand, there are conditions that influence the success of agriculture, such as the business environment, farming performance and entrepreneurial behavior of sugarcane farmers. Entrepreneurial factors determine the success or failure of farmers in adjusting to environmental changes. So

this study aims to see the effect of farming performance, socio-economic factors of farmers and the business environment on the entrepreneurial behavior of sugarcane farmers that will determine the success or failure of farmers.

2. METHOD

This research was conducted in Kediri Regency, East Java Province, with the determination of the sample using a simple random sampling method. The number of samples in this study were 100 respondents. This study will analyze the influence of socio-economic, farming performance as seen from sugarcane productivity and farmer acceptance of entrepreneurial behavior.

The method and analysis used in this study is a quantitative method with the Structural Equation Modeling (SEM) method. The SEM stage begins with data tabulation with MS Excel and then it is analyzed using the SEM method with the stages (1) model specification; (2) model identification; (3) model estimation; (4) validity and reliability test; (5) model fit test and (6) model respecification, supported by Ferdinand A. [1].

The variables used in this study consist of latent variables and manifest variables. The variables analyzed are latent (construct) variables, namely variables that cannot be directly observed but are measured through measurable indicators or manifest variables. Structural Equation Models (SEM) consists of two component models, namely a measurement model that measures the relationship between latent variables and their manifest variables and a structural model that shows a causal relationship between latent variables. In the SEM analysis, an individual test of significance (test of significance) of the estimation results of the model parameters was carried out, this test was carried out using the statistical t test, supported by Wijanto SH [2].

The latent variables used are the socio-economic community, the business environment of farming behavior and farming performance. Meanwhile, the manifest variables of this study are each of the latent variables shown in Table 1.

Table 1. Latent Variable Of the Study

Latent variable	Manifest variable	Symbol
Social Economic	Age	K1
	Experience	K3
Business Environment	Weather Condition	L2
	Plant Disease Pests	L3
	Market Access	L4
Business Performance	Productivity	Y1
	Revenue	Y2
Enterpreneurship behavior	Motivation	E1
	Innovative	E2
	Diligent	E4
	Creative	E5
	Unyielding	E7
	Dare to take risk	E8

The measurement model will test how strong the relationship between the latent variables and each of their constituent indicators (manifest variables) is. The strength of the relationship is indicated by the value of the loading factor. An indicator with a high loading factor has a higher contribution to explaining its latent construct. In contrast, indicators with low factor loading have a weak contribution to explaining the construct, an indicator is said to be valid if the factor weight coefficient is statistically significant, and the estimate is not less than 0.4, supported by Fereidouni HG [3].
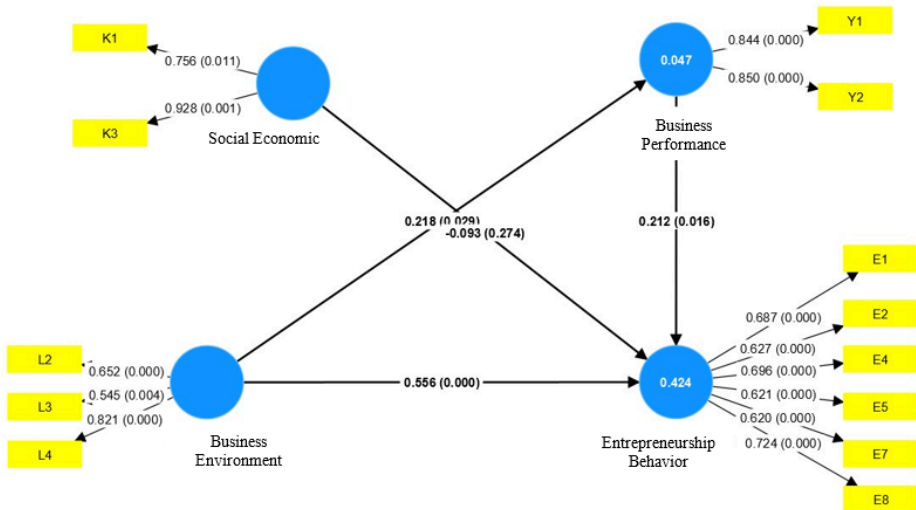
3. RESULTS AND DISCUSSION

Figure 1 The results of the Structural Equation Modeling (SEM) analysis of the effect of the performance of sugarcane farming on the entrepreneurial behavior of sugarcane farmers in Kediri Regency, East Java Province in 2022

Theories and models in the social and behavioral sciences are generally formulated using theoretical concepts that cannot be measured or observed directly [2]. Therefore, the purpose of preparing the SEM model is more theoretical in accordance with the applied field and is directed later to evaluate conformity with the data obtained. The SEM method will be able to know the relationships between variables and their coefficients which cannot be approached through the indicator variables.

This section will discuss the influence of latent variables. The influence of these latent variables will look at the influence of the socio-economic conditions of the community on the entrepreneurial behavior of sugarcane farmers, the influence of the business environment on the performance of farming and entrepreneurial behavior of sugarcane farmers, and the influence of the performance of sugarcane business on the entrepreneurial behavior of sugarcane farmers. Evaluation of this SEM model will include the value of the coefficient, p-value, and coefficient of determination. The results of this analysis can be seen in Figure 1.

Figure 1 shows that business environmental conditions significantly have a positive effect on farming performance and entrepreneurial behavior of sugarcane farmers in Kediri. The business environment with a coefficient value of 0.218 and a p-value of 0.029 on farming performance. This shows that increasing the availability of inputs, access to information on the sugarcane market, the ability of farmers to overcome pests and diseases and weather conditions will improve farming performance and entrepreneurial behavior of sugarcane farmers in Kediri. Therefore, the ability to manage sugarcane farming will improve the performance of sugarcane farming.

In addition, the sugarcane business environment also has a significant influence on the entrepreneurial behavior of sugarcane farmers with a coefficient of 0.556 and a p-value of 0.0000. This shows that the business environment has a significant role in improving the performance of sugarcane farming and entrepreneurial behavior.

If you look at the indicator variable that best measures the business environment is access to the market with a load factor value of 0.821. This is due to the fact that access to market information for sugar cane farmers greatly determines the acceptance of farmers. By having market access, sugar cane farmers can sell their products at high

prices. To obtain information on the sugarcane market, farmers must be creative, never give up, persist, have the courage to take risks and most importantly develop innovative behavior.

Figure 1 also shows that entrepreneurial behavior is also directly influenced by the business environment and the performance of sugarcane farming. The latent variable performance of sugarcane farming has a direct and positive effect on the entrepreneurial behavior of sugarcane farmers with a coefficient value of 0.212 and a p-value of 0.016. Thus the performance of sugarcane farming which is directly influenced by the productivity of sugarcane and the income of sugarcane farmers will increase the entrepreneurial behavior of sugarcane farmers. This can be explained that sugarcane farmers who have good farming performance will encourage sugarcane farmers to foster entrepreneurial behavior. This entrepreneurial behavior is demonstrated by the ability of farmers to face risks, be innovative, diligent in trying, more responsive to existing opportunities, and independence in running sugarcane farming.

4. CONCLUSION

The socio-economic conditions of the community show no significant effect on the entrepreneurial behavior of sugarcane farmers. Meanwhile, business environment factors have a positive effect on entrepreneurial behavior, both directly and indirectly through the performance of sugarcane farming. This is because the ability to access market information, the ability to deal with pests and diseases and the weather can improve farm performance.
Farming performance factors have a positive and significant effect on the entrepreneurial behavior of sugarcane farmers. This shows that the better the performance of sugar cane farming will encourage farmers to foster entrepreneurial behavior.

AUTHORS' CONTRIBUTIONS

Theoretical Contribution: The study can contribute to the theoretical understanding of the relationships between entrepreneurship, smart infrastructure, sustainability practices, innovation, and business performance in the sugarcane industry. By examining these interconnections, the research can expand existing knowledge and theories in the field of agricultural business and entrepreneurship.
Empirical Contribution: The research can provide empirical evidence on the specific relationships between the variables under investigation. By using SEM analysis, the study can generate quantitative results that demonstrate the direct and indirect effects of entrepreneurship index factors, smart infrastructure, sustainability practices, and innovation on business performance in the sugarcane industry. These findings can contribute to the body of empirical research in the field.
Practical Implications: The study can offer practical implications for sugarcane businesses, policymakers, and stakeholders. The research findings can guide sugarcane farmers in adopting entrepreneurship index approaches, implementing smart infrastructure technologies, and incorporating sustainable practices and innovation to enhance their business performance. The recommendations derived from the study can inform decision-making processes, strategy development, and resource allocation within the industry.
Sustainable and Innovative Practices: The research can shed light on the potential of sustainable and innovative practices in the sugarcane industry. By exploring the relationship between smart infrastructure, sustainability practices, and innovation with business performance, the study can emphasize the importance of integrating these elements for long-term success, resilience, and environmental stewardship within the industry.

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