

# Growth of Banana-Based Agribusiness in Indonesia

Haryono

Universitas Bhayangkara Surabaya and [haryono@ubhara.ac.id](mailto:haryono@ubhara.ac.id)

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## ABSTRACT

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This study examines the effects of market access, product innovation, and entrepreneurial experience on the growth of banana-based agribusinesses in Indonesia. Given the sector's significant potential in rural economic development, understanding the factors that drive agribusiness growth is essential. Using a quantitative approach, data were collected from 120 banana-based agribusinesses across various regions in Indonesia, with respondents rating each variable on a Likert scale of 1 to 5. Analysis was conducted using SPSS version 26, applying multiple regression to assess the significance and strength of each variable's impact on business growth. Results indicate that market access, product innovation, and entrepreneurial experience each positively influence agribusiness growth, with product innovation emerging as the most significant predictor. These findings underscore the importance of market accessibility, continuous product innovation, and experienced entrepreneurship as key drivers of success in the agribusiness sector. This study provides actionable insights for policymakers and practitioners to enhance agribusiness performance through targeted support for market infrastructure, innovation, and entrepreneurial development.

**Keywords:** *Agribusiness Growth, Market Access, Product Innovation, Entrepreneurial Experience, Banana-Based Businesses*

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## 1. INTRODUCTION

The banana-based agribusiness sector in Indonesia offers significant opportunities for rural economic development, poverty alleviation, and job creation, driven by Indonesia's position as a leading banana producer, supported by a favorable climate and rich soil. Banana cultivation can substantially increase farmers' household incomes, as nearly all parts of the plant hold economic value, from the fruit to leaves used as eco-friendly wrappers [1]. The expansion of banana agribusiness also generates numerous jobs in farming, processing, and marketing, contributing to rural employment [2]. Strategies to enhance banana productivity, such as adopting superior cultivation techniques, have the potential to elevate yields from 5.45 tons/ha/year to 10–30 tons/ha/year [3]. Moreover, diversification initiatives, including the production of banana-based chips and snacks, have successfully increased community knowledge and skills, thus boosting local economies [2], [4]. Programs emphasizing community entrepreneurship, which leverage local assets like bananas, have further fostered economic growth by enabling the development of marketable products in rural areas [4].

The growth of banana-based agribusinesses in Indonesia faces several critical challenges despite the crop's natural advantages. Many banana farmers encounter difficulties in accessing lucrative markets, which limits their income potential, as export markets are often dominated by larger players, leaving smallholders with minimal profit margins [5]. Additionally, the lack of innovation in product development restricts farmers' ability to diversify their offerings, such as creating processed banana products [4]. Research suggests that integrating technology, such as mobile applications for crop management, could improve productivity and foster innovation [6]. Furthermore, disparities in entrepreneurial skills among farmers result in inconsistent participation in value chains, adversely impacting profitability [7]. Addressing these issues requires targeted

training and support in management and marketing to empower farmers and enhance their capacity to overcome these obstacles effectively [8].

Market access is vital for the success of small and medium-sized banana-based agribusinesses in Indonesia, as it directly impacts their competitiveness and revenue. However, many smallholders face challenges such as limited knowledge of market demands and opportunities, which hampers the full utilization of their banana production potential [9]. Additionally, inadequate infrastructure, including poor transport and storage facilities, compromises their ability to deliver quality products to markets, reducing competitiveness [9]. Financial constraints further exacerbate the issue, as smallholders often struggle to access credit for investments in quality improvement and logistics [10]. Addressing these challenges through product innovation is essential; diversification into banana-based snacks and processed products can create new revenue streams and meet changing consumer preferences [11]. Furthermore, developing value-added products enhances marketability and enables higher profit margins [9].

Entrepreneurial experience plays a critical role in shaping the growth trajectory of agribusinesses, as experienced entrepreneurs are better equipped to navigate market complexities. They possess a deeper understanding of market dynamics, enabling effective adaptation to changes [12], and are more likely to engage in experiential learning, which enhances their capacity for innovation and calculated risk-taking [13]. Studies show that entrepreneurial competencies are positively correlated with business performance metrics such as profitability and sales growth [14], while farmers with prior job experience demonstrate higher productivity and improved startup outcomes due to enhanced social capital and resource utilization [15]. Conversely, inexperienced entrepreneurs often lack the skills required to manage supply chains and competition, resulting in lower market participation [12]. They also tend to miss opportunities to leverage support systems like family and community networks, which can provide vital resources [13]. By examining the combined effects of market access, product innovation, and entrepreneurial experience, this study aims to identify key growth drivers and provide actionable insights for stakeholders seeking to foster a more dynamic and competitive banana-based agribusiness sector in Indonesia.

### **Research Gap**

Despite extensive research on individual factors such as market access, innovation, and entrepreneurship, there is limited empirical evidence examining their combined effect on the growth of banana-based agribusinesses in Indonesia. This study addresses this gap by analyzing the impact of these three variables collectively, offering a comprehensive understanding of the growth dynamics within the banana-based agribusiness sector. By focusing on a quantitative analysis using 120 samples from banana agribusinesses in Indonesia, this research contributes valuable insights to the fields of agribusiness management and development. The findings aim to inform policies and practices that support market expansion, innovation incentives, and entrepreneurial training, ultimately enhancing the competitiveness and growth potential of agribusinesses in Indonesia. This study employs a quantitative approach to assess the impact of market access, product innovation, and entrepreneurial experience on business growth within the banana-based agribusiness sector in Indonesia.

## 2. LITERATURE REVIEW

### 2.1 *Market Access*

Entrepreneurial experience significantly influences the growth trajectory of agribusinesses, as experienced entrepreneurs are generally more adept at navigating market complexities. They possess a deeper understanding of market dynamics, enabling effective adaptation to changes [12], and are more likely to engage in experiential learning, which enhances their ability to innovate and take calculated risks [13]. Research indicates that entrepreneurial competencies have a positive correlation with business performance metrics, such as profitability and sales growth [14], while farmers with prior job experience demonstrate higher productivity and better startup performance due to enhanced social capital and resource utilization [15]. In contrast, inexperienced entrepreneurs often lack the necessary skills to manage supply chains and competition, resulting in lower market participation [12]. They also miss opportunities to leverage support systems like family and community networks, which can provide essential resources [13]

H1: Market access has a positive and significant effect on the growth of banana-based agribusiness in Indonesia.

H0: Market access does not have a positive and significant effect on the growth of banana-based agribusiness in Indonesia.

### 2.2 *Product Innovation*

Product innovation in agribusiness, particularly for banana-based products, is essential for enhancing market competitiveness and resilience. Innovations such as developing banana flour and chips not only diversify product offerings but also improve shelf life and marketability, aligning with Porter's competitive advantage theory, which emphasizes that differentiation and cost reduction through innovation lead to superior market performance [16], [17]. Innovative products enable agribusinesses to cater to diverse consumer segments, reducing vulnerability to market fluctuations (Rudenko et al., 2023). Moreover, enhanced product design and packaging boost consumer perceived value, further strengthening market positions [17]. Economically, value-added innovations improve product characteristics and operational efficiencies, enhancing the economic potential of agricultural enterprises (Rudenko et al., 2023). Strategic management of the innovation process is crucial for achieving economic goals and adapting to market dynamics [16].

H2: Product innovation positively influences the growth of banana-based agribusinesses in Indonesia.

H0: Product innovation does not have positively influences the growth of banana-based agribusinesses in Indonesia.

### 2.3 *Entrepreneurial Experience*

Entrepreneurial experience plays a pivotal role in agribusiness success by enhancing decision-making, risk management, and strategic insights. Experienced entrepreneurs possess a deeper understanding of industry trends, leading to improved operational practices [18], and can effectively manage resources to optimize production cycles and reduce waste, which is crucial in agribusiness [19]. This experience also correlates

positively with business resilience, enabling firms to navigate economic downturns successfully [18]. Furthermore, experienced entrepreneurs excel at identifying and leveraging competitive advantages, ensuring sustained growth (Veni, 2024). Their propensity for innovation allows them to adapt product lines to meet evolving market demands [4], while fostering market connections enhances access to new technologies and practices that drive business growth [20].

H3: Entrepreneurial experience has a positive impact on the growth of banana-based agribusinesses in Indonesia.

H0: Entrepreneurial experience does not have a positive impact on the growth of banana-based agribusinesses in Indonesia.

### 3. METHODS

#### 3.1 Approach

This study uses a quantitative research design to examine the relationships between the independent variables (market access, product innovation, and entrepreneurial experience) and the dependent variable (agribusiness growth). A cross-sectional survey method was adopted to gather data at a single point in time from banana-based agribusinesses across Indonesia, providing a snapshot of business conditions and the influence of the selected factors on agribusiness growth.

The study focused on banana-based agribusinesses in Indonesia, specifically targeting small and medium-sized enterprises (SMEs) involved in producing, processing, and marketing banana products. Using purposive sampling, 120 respondents were selected based on criteria that the business must primarily focus on banana-based products, operate within Indonesia, and have an owner or manager with at least one year of experience to provide informed responses on the variables studied. The sample size was deemed adequate for statistical analysis, ensuring reliable estimates of variable relationships and generalizability within the agribusiness sector. Data were collected using a structured questionnaire distributed to the selected banana-based agribusinesses.

#### 3.2 Data Analysis

The data were analyzed using SPSS version 26, employing several techniques to examine the relationships between the independent variables (market access, product innovation, and entrepreneurial experience) and the dependent variable (agribusiness growth). Descriptive statistics summarized demographic data and provided an overview of the distribution, mean, and standard deviation of each variable. Reliability analysis assessed internal consistency using Cronbach's Alpha, with a threshold of 0.70 or above indicating acceptable reliability. Pearson's correlation coefficient was used to evaluate the strength and direction of relationships between the independent variables and agribusiness growth. Multiple regression analysis was conducted to determine the effect of each independent variable on agribusiness growth [21]. The results of the regression analysis facilitated hypothesis testing, evaluating the significance and strength of each variable's impact on agribusiness growth.

### 4. RESULTS AND DISCUSSION

#### 4.1 Descriptive Statistics

The descriptive statistics provide an overview of the sample characteristics and the distribution of responses for each variable. The average score for market access was 3.87, indicating that most respondents perceive their access to markets as moderately favorable, though with room for improvement. Product innovation had a mean score of 4.01, suggesting active engagement in developing new products and improving processes among banana-based agribusinesses. Entrepreneurial experience scored an average of 4.15, reflecting substantial experience among

respondents in managing their businesses, which could enhance decision-making and growth. Agribusiness growth showed a mean score of 4.08, indicating a generally positive trend in growth supported by moderate to strong business performance.

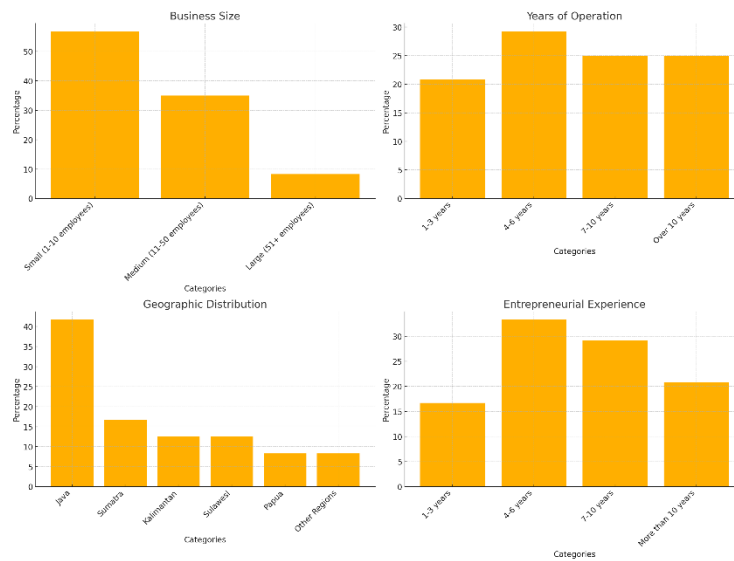


Figure 1. Demographic Sample

Source: Authors (2024)

The demographic profile provides insights into the characteristics of the 120 respondents representing banana-based agribusinesses in Indonesia, covering business size, years of operation, geographic distribution, and entrepreneurial experience. Most respondents (56.7%) operate small businesses with 1-10 employees, followed by medium businesses (35%) and a smaller proportion of large businesses (8.3%). In terms of years of operation, a significant portion (54.2%) has been in business for more than six years, reflecting a relatively stable and experienced group. Geographically, the respondents are distributed across Java (41.7%), Sumatra (16.7%), Kalimantan (12.5%), Sulawesi (12.5%), Papua (8.3%), and other regions (8.3%), highlighting the diverse reach of banana-based agribusinesses nationwide. Entrepreneurial experience further supports this finding, with 54.2% of respondents having more than six years of experience, indicating a group capable of strategic decision-making and effective business management.

#### 4.2 Validity and Reliability

The validity and reliability of the measurement scales for market access, product innovation, entrepreneurial experience, and agribusiness growth were assessed using factor analysis and Cronbach’s Alpha coefficients. Validity was confirmed as each construct’s items loaded onto a single factor with eigenvalues greater than 1, and factor loadings for each item exceeded 0.60, indicating strong correlations between the items and their respective constructs. Reliability was supported by Cronbach’s Alpha values, ensuring consistent measurement across items.

Table 1. Validity Testing

Variable	Item	Factor Loading
Market Access	X1.1	0.735
	X1.2	0.793
	X1.3	0.766
	X1.4	0.821
Product Innovation	X2.1	0.813
	X2.2	0.775

	X2.3	0.847
Entrepreneurial Experience	X3.1	0.763
	X3.2	0.805
	X3.3	0.780
Agribusiness Growth	Y.1	0.742
	Y.1	0.831
	Y.1	0.793

Source: Authors (2024)

All items met the criterion of factor loadings  $> 0.6$ , confirming good construct validity for the measurement items.

### 4.3 Reliability Analysis

Reliability of each variable was assessed using Cronbach's Alpha, which measures the internal consistency of items within a construct. A Cronbach's Alpha value of 0.7 or higher is considered acceptable for social science research. Table 3 presents the Cronbach's Alpha values for each construct.

Table 2. Reliability Testing

Variable	Cronbach's Alpha
Market Access	0.836
Product Innovation	0.873
Entrepreneurial Experience	0.817
Agribusiness Growth	0.822

Source: Authors (2024)

All variables exhibited Cronbach's Alpha values above 0.80, indicating high reliability and strong internal consistency among the items.

### 1. Classical Assumption Tests

To ensure that the regression model meets the necessary assumptions, classical assumption tests were conducted, including tests for normality, heteroscedasticity, and multicollinearity. The results of each test are presented below.

### 2. Normality Test

The normality test was conducted to ensure that the residuals of the regression model were normally distributed, assessed using the Kolmogorov-Smirnov test and by examining skewness and kurtosis values. The Kolmogorov-Smirnov test yielded a significance value of 0.200, which exceeds the threshold of 0.05, confirming that the residuals are normally distributed.

Table 3. Normality Testing

Statistic	Value
Kolmogorov-Smirnov	0.087
Sig.	0.200

Source: Authors (2024)

### 3. Heteroscedasticity Test

The heteroscedasticity test was conducted to confirm that the variance of the error term remains constant, using the Glejser test to assess whether the absolute residuals are related to the independent variables. The results indicated that none of the independent variables (market access, product innovation, and entrepreneurial experience) significantly affected the absolute residuals, as all significance values exceeded 0.05. This confirms the absence of heteroscedasticity in the model.

Table 4. Heteroscedasticity Testing

Variable	Sig. (Glejser Test)
Market Access	0.312
Product Innovation	0.275
Entrepreneurial Experience	0.422

Source: Authors (2024)

The results confirm that the model meets the homoscedasticity assumption, as there is no heteroscedasticity detected.

#### 4. Multicollinearity Test

The multicollinearity test was conducted to verify that there is no high correlation between the independent variables, which could distort the results. Using the Variance Inflation Factor (VIF) and tolerance values, the analysis showed that all independent variables had VIF values below 10 and tolerance values above 0.1, confirming the absence of multicollinearity.

Table 5. Multicollinearity testing

Variable	Tolerance	VIF
Market Access	0.642	1.558
Product Innovation	0.658	1.519
Entrepreneurial Experience	0.682	1.466

Source: Authors (2024)

These results indicate that multicollinearity is not present, as all VIF values are within the acceptable range.

#### 4.4 Multiple Regression Analysis

Multiple regression analysis was conducted to determine the impact of the independent variables (market access, product innovation, and entrepreneurial experience) on the dependent variable (agribusiness growth) in banana-based businesses in Indonesia. This section presents the model summary, ANOVA results, and regression coefficients.

#### 4.5 Model Summary

The model summary provides an overview of the strength of the relationship between the independent variables and the dependent variable. The R-squared and adjusted R-squared values indicate how well the independent variables explain the variance in agribusiness growth.

Table 6. Coefficient

Statistic	Value
R	0.789
R-squared	0.622
Adjusted R-squared	0.613
Standard Error	0.410

Source: Authors (2024)

The R-squared value of 0.622 indicates that approximately 62.2% of the variance in agribusiness growth is explained by the combined effects of market access, product innovation, and entrepreneurial experience, suggesting a strong model fit. The adjusted R-squared value of 0.613 further confirms the model's robustness by accounting for the number of predictors.

The ANOVA table tests the overall significance of the regression model. The F-test results indicate whether the independent variables collectively have a significant effect on the dependent variable.

Table 7. F Testing

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	33.75	3	11.25	66.92	0.000
Residual	20.53	116	0.177		
Total	54.28	119			

Source: Authors (2024)

The F-statistic value of 66.92 with a significance level of 0.000 ( $p < 0.01$ ) demonstrates that the model is statistically significant, indicating that the independent variables—market access, product innovation, and entrepreneurial experience—collectively have a substantial impact on agribusiness growth.

#### 4.6 Regression Coefficients

The regression coefficients provide insights into the individual contribution of each independent variable to the dependent variable. The table below shows the unstandardized coefficients (B), standardized coefficients (Beta), t-values, and significance levels.

Table 8. T Testing

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	0.912	0.215		4.242	0.000
Market Access	0.350	0.070	0.381	5.000	0.000
Product Innovation	0.420	0.065	0.467	6.462	0.000
Entrepreneurial Experience	0.280	0.074	0.292	3.784	0.000

Source: Authors (2024)

The constant value of 0.912 represents the estimated agribusiness growth when all independent variables are set to zero. Market access, with a coefficient of 0.350 ( $p < 0.01$ ), indicates that a one-unit increase in market access leads to a 0.350 increase in agribusiness growth, as confirmed by a t-value of 5.000 and a significance level of 0.000, showing a statistically significant positive effect. Product innovation, the most influential predictor, has a coefficient of 0.420 ( $p < 0.01$ ), meaning a one-unit increase in product innovation results in a 0.420 increase in agribusiness growth, supported by a t-value of 6.462 and a significance level of 0.000. Entrepreneurial experience, with a coefficient of 0.280 ( $p < 0.01$ ), suggests that a one-unit increase in this variable contributes to a 0.280 increase in agribusiness growth, as evidenced by a t-value of 3.784 and a significance level of 0.000. All three variables significantly and positively influence agribusiness growth.

#### Discussion

The results of this study reveal that market access, product innovation, and entrepreneurial experience are significant predictors of agribusiness growth in banana-based businesses in Indonesia. Each of these factors contributes uniquely to the success and expansion of agribusinesses, reinforcing the importance of both strategic business practices and supportive infrastructure in agricultural entrepreneurship. The analysis indicates that market access significantly affects agribusiness growth, with a positive relationship between improved market access and business expansion. This finding aligns with the work of [22]–[26], who emphasized that market access is critical for small agribusinesses to expand their reach, access new customer bases, and achieve competitive pricing. In the context of banana-based agribusinesses in Indonesia, enhanced market access facilitates the movement of products beyond local markets to reach regional and national consumers, thereby boosting sales and profitability. The significant impact of market access suggests that agribusinesses could benefit from infrastructural improvements, such as better transportation networks and digital marketplaces, which enable them to reach a broader range of customers. Policymakers should consider initiatives that reduce logistical challenges, improve rural transport,



and support the digital transformation of markets, allowing small and medium-sized agribusinesses to engage in e-commerce and expand their sales channels. Such improvements would not only increase the scale of operations for banana-based agribusinesses but also enhance their competitiveness within Indonesia's agricultural sector.

Product innovation emerged as the most influential factor in this study, indicating that businesses that actively innovate and diversify their product offerings experience more substantial growth. This finding supports [27]–[31] competitive advantage theory, which posits that innovation enables businesses to differentiate themselves in the marketplace, reduce production costs, and achieve superior quality. For banana-based agribusinesses, product innovation might involve the development of new processed products, such as banana chips, banana flour, or other value-added goods, which can meet diverse consumer preferences and create new revenue streams. The positive impact of product innovation suggests that agribusinesses in Indonesia should focus on continuously improving and diversifying their products to remain competitive. Government and private sector support, such as grants for research and development (R&D) or access to training on product development, could further stimulate innovation within the industry. These initiatives would enable small businesses to explore new processing methods, experiment with packaging innovations, and target niche markets, ultimately fostering a culture of innovation and enhancing overall industry resilience.

Entrepreneurial experience also plays a significant role in the growth of banana-based agribusinesses, with more experienced entrepreneurs demonstrating better growth outcomes. This finding is consistent with studies by [18], [19], [32], which highlight the importance of experience in enhancing business management, resilience, and strategic planning. Experienced entrepreneurs tend to be more skilled at navigating market challenges, managing supply chains, and identifying growth opportunities, which ultimately contributes to sustained business success. The positive effect of entrepreneurial experience implies that efforts to support new and less-experienced entrepreneurs could be beneficial for the growth of agribusinesses. Mentorship programs, business training, and workshops on essential business skills could help equip newer entrepreneurs with the knowledge and skills needed to effectively manage agribusiness challenges. By enhancing the entrepreneurial capabilities of agribusiness owners, these initiatives could foster sustainable growth and resilience across the sector, particularly for newer ventures or small businesses in rural areas.

### **Implications**

The combined effect of market access, product innovation, and entrepreneurial experience underscores the interconnectedness of these factors in driving agribusiness growth. While each factor individually contributes to business success, their collective impact suggests that policies and programs should consider a holistic approach to agribusiness development. For instance, efforts to improve market access would be most effective when coupled with support for innovation, as access to new markets creates opportunities for diverse products. Similarly, experienced entrepreneurs are better equipped to leverage market access and innovation initiatives to maximize growth potential.

For policymakers, this study highlights the importance of creating an ecosystem that supports agribusinesses in multiple dimensions. Strategic interventions, such as rural infrastructure investments, innovation grants, and entrepreneurial training, could significantly enhance the capacity of banana-based agribusinesses to grow and compete. Additionally, collaboration between government agencies, private enterprises, and agricultural associations would provide a comprehensive support system, facilitating access to resources, knowledge sharing, and market development opportunities.

### **Theoretical and Practical Contributions**

This study contributes to the literature on agribusiness development by empirically examining the roles of market access, product innovation, and entrepreneurial experience in the

context of banana-based agribusinesses in Indonesia. The findings validate the applicability of competitive advantage theory and the resource-based view in understanding agribusiness growth drivers. Practically, the study provides valuable insights for agribusiness owners and managers, emphasizing the need for a strategic focus on market expansion, continuous innovation, and experience-driven management.

### Limitations

While this study provides meaningful insights, it is limited by its focus on a single type of agribusiness (banana-based) within a specific geographical context (Indonesia). Future research could explore the influence of these factors on different types of agribusinesses, such as cocoa, coffee, or livestock, to determine if the findings are generalizable across various sectors. Additionally, incorporating other potential growth factors, such as financial access, technology adoption, or supply chain partnerships, could offer a more comprehensive view of agribusiness success factors.

Further research could also examine the long-term impact of government policies on agribusiness growth, analyzing the effectiveness of specific programs or interventions over time. Understanding how policies impact agribusiness outcomes across regions or business types would help refine and optimize development strategies, making them more responsive to the unique needs of agricultural entrepreneurs.

## CONCLUSION

The results of this study confirm that market access, product innovation, and entrepreneurial experience are significant drivers of growth for banana-based agribusinesses in Indonesia. Product innovation proved to be the most influential factor, suggesting that agribusinesses should prioritize innovation to create diverse, value-added products that meet changing consumer demands. Market access also plays a crucial role by enabling businesses to reach broader customer bases and improve their sales potential, while entrepreneurial experience enhances resilience and effective business management.

These findings highlight the need for policies that support rural infrastructure development, innovation incentives, and entrepreneurial skill-building programs. Investments in transportation networks, digital marketplaces, and research and development grants would facilitate market expansion and product diversification, fostering sustainable growth in the agribusiness sector. Additionally, providing training and mentorship for agribusiness owners would enhance their capabilities, particularly for less experienced entrepreneurs.

Future research could expand on these findings by exploring additional factors affecting agribusiness growth, such as access to financing and digital technology adoption, as well as conducting similar studies across other types of agribusinesses and regions. A comprehensive approach to agribusiness development, addressing multiple growth drivers, can lead to more robust and competitive agricultural industries that support economic development in rural areas.

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