

Sustainable Entrepreneurship Mediation Model in the Relationship of Self-Efficacy and Individual Entrepreneurial Orientation to Firm Performance of the Wood Processing Industry

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ABSTRACT

This study examines the mediating role of sustainable entrepreneurship in the relationship between self-efficacy, individual entrepreneurial orientation (IEO), and firm performance in the wood processing industry in Lumajang Regency, Indonesia. The study addresses the trade-offs faced by resource-based industries between economic performance, environmental sustainability, and regulatory compliance, while filling a research gap by examining these relationships simultaneously. Data were collected from 114 wood processing companies and analyzed using partial least squares structural equation modeling (PLS-SEM). The results show that IEO has a positive and significant effect on sustainable entrepreneurship, whereas self-efficacy has a positive but insignificant effect. Sustainable entrepreneurship has a positive and significant effect on firm performance, while self-efficacy also has a significant direct effect on firm performance. In contrast, IEO does not have a significant direct effect on firm performance. Mediation analysis indicates that sustainable entrepreneurship does not mediate the relationship between self-efficacy and firm performance, indicating a direct-only effect. However, sustainable entrepreneurship significantly mediates the relationship between IEO and firm performance through an indirect-only effect. This study integrates social cognitive theory, entrepreneurial orientation, and the resource-based view, demonstrating that sustainable entrepreneurship functions as a strategic mechanism for improving firm performance in resource-based industries. The findings provide practical implications for developing adaptive and sustainable business strategies.

Keywords: Self-Efficacy; Individual Entrepreneurial Orientation (IEO); Sustainable Entrepreneurship; Firm Performance; Resource-Based Industries



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INTRODUCTION

The wood processing industry is a strategic sector highly dependent on natural resources and plays an important role in driving economic growth in resource-rich areas. In Indonesia, Lumajang is one of the districts with relatively high production of wood as an industrial raw material. This potential comes from community plantations, production forests, and allowances from the area around Lumajang. The availability of these raw materials encourages the development of wood processing industry activities, ranging from small to medium scale. However, these conditions do not necessarily guarantee the business's sustainability and performance, given that this industry faces various complex, multidimensional pressures. Empirically, the wood processing industry faces a trade-off among economic interests, environmental sustainability, and regulatory compliance. On the one hand, business actors are required to improve company performance by enhancing production efficiency, expanding markets, and optimizing capacity. On the other hand, they also face limited raw materials, legal pressures such as certification and licensing requirements, and environmental preservation demands. This creates a strategic dilemma in which short-term performance improvements can conflict with long-term sustainability. This phenomenon becomes increasingly complex in regions such as Lumajang, which, despite having relatively abundant raw materials, still faces distribution challenges, supply fluctuations, and external pressures from markets and regulations.

In the face of these complexities, the implementation of sustainable entrepreneurship approaches is becoming increasingly relevant as a strategic framework that integrates the economic, social, and environmental aspects of business activities. This concept not only emphasizes the company's performance achievements but also how the company manages existing trade-offs adaptively and sustainably (Masciarelli & Leonelli, 2020). However, the implementation of sustainable entrepreneurship is inseparable from individual factors, especially psychological aspects such as self-efficacy and behavioral aspects such as individual entrepreneurial orientation (IEO). These two factors are believed to shape how individuals respond to uncertainty and make strategic decisions in business (Yajid et al., 2019; Irawan et al., 2023; Reshi et al., 2025). However, empirical studies examining the relationships among self-efficacy, individual entrepreneurial orientation (IEO), sustainable entrepreneurship, and firm performance continue to yield inconsistent results. Some studies have shown that self-efficacy and individual entrepreneurial orientation (IEO) directly influence company performance (Salehe et al., 2024; Lazarte, 2024), while other studies have found that these effects are indirect and mediated by mechanisms. Previous research has mostly explored dominant industrial sectors in society, such as services and tourism, so few studies have examined natural resource-based industries with high trade-off characteristics (Patwary et al., 2022; Rosario et al., 2022). (Lazarte, 2024).

Based on the research gap, this study contributes by positioning sustainable entrepreneurship as a mediating mechanism that links individual factors (self-efficacy and individual entrepreneurial orientation (IEO)) to company performance (Salehe et al., 2024; Irawan et al., 2023). This approach provides a new perspective: the influence of psychological factors and entrepreneurial behavior does not directly determine performance but operates through the process of transforming into a sustainability-oriented business practice. In addition, this research makes a contextual contribution by elevating the wood processing industry in Lumajang Regency as the object of study, which reflects the characteristics of resource-based industries with a high level of trade-off. (Salehe et al., 2024; Irawan et al., 2023). The novelty of this research lies in combining the perspectives of social cognitive theory, entrepreneurial orientation, and the resource-based view into a single conceptual framework that explains how individual factors translate into company performance through sustainable entrepreneurship. In previous research, which has generally struggled to test the direct influence of self-efficacy and entrepreneurial orientation on company performance, this study explicitly positions sustainable entrepreneurship as a mediating variable that bridges this relationship, particularly in resource-based industries with high trade-off pressures.

Theoretically, this research is built on three main pillars. First, social cognitive theory (Alshebami, 2023) provides the foundation for understanding self-efficacy as a psychological determinant of the intensity of effort, perseverance, and the quality of individual decision-making under uncertainty. Second, Entrepreneurial Orientation Theory (Smoke et al., 2009) provides a framework for analyzing how the dimensions of innovation, proactivity, and risk-taking courage at the individual level (IEO) drive organizational strategic behavior. Third, the Resource-Based View (Barney, 1991) posits that a company's competitive advantage stems from internal resources that are valuable, scarce, inimitable, and non-substitutable. In this context, sustainable entrepreneurship is positioned as a strategic capability that converts individual resources into sustainable company performance. The integration of these three theories is important because each describes distinct aspects of the relationship under study, thereby offering a more comprehensive framework for understanding how individual factors translate into corporate performance, particularly in resource-based industries characterized by trade-offs. Although there have been many studies that have examined the relationship between individual entrepreneurial orientation (IEO) and firm performance, the results of previous studies still show inconsistencies, especially regarding the role of individual factors such as self-efficacy and individual entrepreneurial orientation (IEO) in encouraging the company's performance. Some studies show a direct influence between these factors on performance, while others emphasize the importance of mediation mechanisms, especially through sustainability-oriented strategies. (Salehe et al., 2024).

The inconsistency of previous research results presents an interesting new research avenue for examining how individual-level entrepreneurial attributes translate into organizational outcomes. The new research space is a strategic need for resource-based industries, which face high trade-offs among economic performance, environmental sustainability, and regulatory compliance. Thus, there is still a limited understanding of the mechanisms that explain how individual factors in the form of self-efficacy and Individual entrepreneurial orientation (IEO) translate into firm performance, especially through sustainable entrepreneurship in the wood processing industry that faces trade-offs between economic, environmental, and regulatory interests.

Based on the theoretical framework that has been described, this study proposes seven hypotheses that test the causal relationship between variables as follows:

- H1 : Self-efficacy has a positive and significant effect on sustainable entrepreneurship.
- H2 : Individual entrepreneurial orientation (IEO) has a positive and significant effect on sustainable entrepreneurship.
- H3 : Self-efficacy has a positive and significant effect on firm performance.
- H4 : Individual entrepreneurial orientation (IEO) has a positive and significant effect on firm performance.
- H5 : Sustainable entrepreneurship has a positive and significant effect on firm performance.
- H6 : Sustainable entrepreneurship mediates the influence of self-efficacy on firm performance.
- H7 : Sustainable entrepreneurship mediates the influence of individual entrepreneurial orientation (IEO) on firms' performance.

METHODS

Quantitative methods were used in this study to analyze the mediation mechanism of sustainable entrepreneurship on the influence of self-efficacy and individual entrepreneurial orientation (IEO) on firm performance. The research population comprises 141 timber-processing companies in Lumajang Regency, as per data from the Forestry Service in 2025. The questionnaire was distributed to the entire population. Still, as many as 114 companies responded in full and confirmed the feasibility of data processing, while 27 companies did not respond or did not return the

questionnaire. Thus, the data analyzed came from 114 companies (response rate of 92.91%). The tabulation of research data uses survey techniques for all these companies.

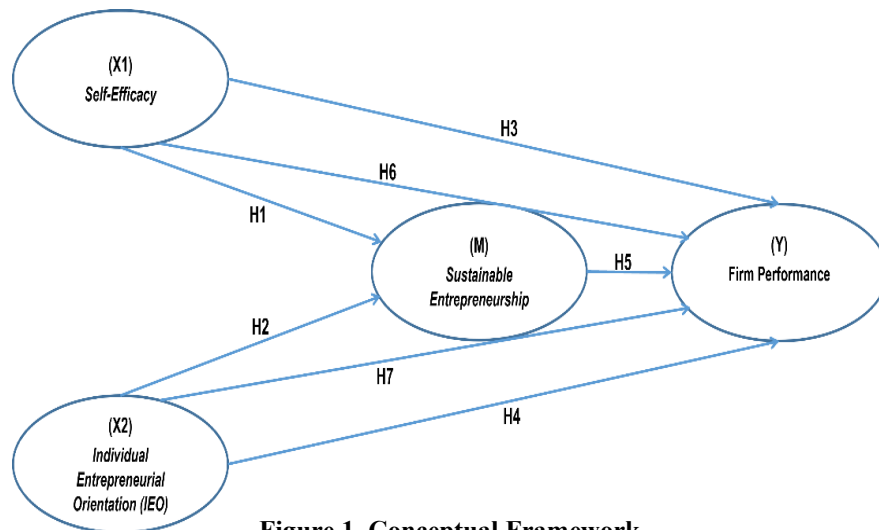


Figure 1. Conceptual Framework

Research data were collected by distributing questionnaires to all companies, both in person and via a Google Form. Respondents rated 20 statements in the questionnaire on a five-point Likert scale from 1 (very unsure) to 5 (very confident). The questionnaire consists of 20 statements that measure four research constructs. Each construct was measured with 5 (five) indicators: self-efficacy (5 items) adapted from Alshebami (2023) and Shen al. (2021); individual entrepreneurial orientation (IEO) (5 items) adapted from Rauch et al. (2009) and Yajid et al. (2019); Sustainable Entrepreneurship (5 items) adapted from Masciarelli et al. (2020) and Salad et al. (2024); and firm performance (5 items) adapted from Almulhim et al. (2024) and Patwary et al. (2022). All items were measured on a 5-point Likert scale (1 = very unsure, 5 = very confident).

The research data were processed using SmartPLS 4.0. The research variables included self-efficacy (X1), individual entrepreneurial orientation (IEO) (X2), sustainable entrepreneurship (M), and firm performance (Y). Data analysis was carried out through two stages. The first stage involved a descriptive analysis, aimed at explaining the characteristics of the respondents and the distribution of the answers obtained. In the second stage, the inferential analysis was conducted using PLS-based SEM in SmartPLS 4.0. The model evaluation process includes testing the outer model (convergent validity, discriminant validity, and construct reliability) and the inner model (analysis of relationships among variables and hypothesis testing via bootstrapping).

Conceptually, this research model can be formulated in the following equations:

$$\text{Model 1} \\ M = \alpha_1 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_1$$

$$\text{Model 2} \\ Y = \alpha_2 + \beta_3 X_1 + \beta_4 X_2 + \beta_5 M + \varepsilon_2$$

Where:

Y	=	Firm Performance (Y)
X ₁	=	Self-Efficacy
X ₂	=	Individual Entrepreneurial Orientation (IEO)
M	=	Sustainable Entrepreneurship (M)
β ₁ , β ₂ , β ₃ , β ₄ , β ₅	=	Path Coefficients
α ₁ , α ₂	=	Error Term

The above equation presents a research model examining the influence of self-efficacy and individual entrepreneurial orientation (IEO) on firm performance, with sustainable entrepreneurship as a mediating variable. The existence of this mediation variable is considered significant because it theoretically explains the mechanism underlying the relationship between self-efficacy and individual entrepreneurial orientation (IEO) and firm performance. Thus, this model not only emphasizes the direct relationships among variables but also the role of sustainable entrepreneurship in strengthening or weakening the influence of these factors on firm performance.

RESULTS AND DISCUSSION

The characteristics of the respondents in this study describe the profile of the wood-processing industry business actors in Lumajang Regency, the research unit of analysis. Respondents were selected based on certain criteria: individuals directly involved in business management, both as owners and operational managers, to ensure they have an adequate understanding of the company's internal and external conditions. The characteristics of the respondents were analyzed based on several demographic and professional aspects (gender, age, education, working period, and position) in the company. Through this analysis, the researcher describes the characteristics of the respondents and verifies that the data obtained is sourced from relevant and representative parties to the target population.

Table 1. Respondent Profile Description Statistics (n=114)

No	Description	Frequency	Percentage (%)
1	Gender		
	Women	19	16,67
	Male	95	83,33
2	Educational Background		
	Elementary School	4	3,51
	Junior High School	3	2,63
	Senior High School	44	38,60
	Diploma	3	2,63
	Bachelor	59	51,75
	Postgraduate	1	0,88
3	Age		
	15 – 25 Years	3	2,63
	26 – 30 Years	13	11,40
	31 – 35 Years	20	17,54
	36 – 40 Years	30	26,32
	41 – 45 Years	23	20,18
	46 – 50 Years	21	18,42
	51 – 60 Years	4	3,51
4	Job Tenure		
	0 - 5 Years	25	21,93
	6 - 10 Years	41	35,96
	11 - 15 Years	23	20,18
	16 - 20 Years	18	15,79
	20 Years and Above	7	6,14

In general, the characteristics of the respondents indicate that the timber industry business actors in Lumajang Regency are predominantly individuals with extensive business experience and direct involvement in the company's operations. Armed with this information, it can be described that respondents have good capacity to respond to business dynamics and challenges (raw materials, regulations, market competition). Thus, the research can be continued with an in-depth analysis,

armed with credibility in the adequate category. This study employs a quantitative approach using partial least squares (PLS) SEM, implemented in SmartPLS 4.0. The main consideration when choosing PLS-SEM is that it is a complex model. This is because there are direct and indirect relationships among variables, as well as predictive relationships among latent constructs; this method is also considered appropriate given the relatively small sample count. Ghozali & Kusumadewi (2023) explained that the analysis was conducted in two stages: evaluating the measurement model (outer model) and the structural model (inner model).

The evaluation of the outer model uses research indicators, namely convergent validity, discriminant validity, and an internal consistency test to test the validity and reliability of constructs. The inner model test was followed by Ghozali & Kusumadewi (2023) to test the relationship between latent variables by examining the coefficient of determination (R^2), effect size (f^2), goodness of fit (GoF), and hypothesis testing using t-statistics and p-values. This approach allows data analysis to focus not only on testing the significance of relationships among variables but also on measuring the magnitude, direction, and mechanism of those relationships within the model. The goal is to obtain a comprehensive picture of how individual factors, entrepreneurial orientation, and sustainability practices influence company performance, particularly in the timber industry, which has complex characteristics and high trade-offs.

Outer model analysis

Reliability Test

The reliability test in this study aims to assess the extent to which the indicators comprising the latent construct exhibit good internal consistency. The level of reliability reflects the research instrument's ability to yield consistent and comparable results when applied under similar conditions. The reliability test was carried out by measuring composite reliability and Cronbach's alpha (Ghozali & Kusumadewi, 2023). Constructs are declared reliable if they meet the minimum required limits. Thus, all of these indicators can be relied upon to represent research variables stably and accurately.

Table 2. Construct Reliability and Validity

Construct	Cronbach's Alpha	Composite Reliability (ρ_a)	Composite Reliability (ρ_c)	Average Variance Extracted (AVE)
Self-Efficacy	0.787	0.790	0.853	0.538
Individual Entrepreneurial Orientation (IEO)	0.794	0.796	0.859	0.550
Sustainable Entrepreneurship	0.804	0.807	0.864	0.560
Firm Performance	0.798	0.802	0.860	0.552

From the data above, it can be concluded:

1. The self-efficacy variable showed a Cronbach's alpha value of 0.787 and a composite reliability of 0.853. With a value greater than 0.7, this variable is considered reliable.
2. The individual entrepreneurial orientation (IEO) variable showed a Cronbach's alpha value of 0.794 and composite reliability of 0.859. With a value greater than 0.7, this variable is considered reliable.
3. The sustainable entrepreneurship variable showed a Cronbach's alpha of 0.804 and a composite reliability of 0.864. With a value greater than 0.7, this variable is considered reliable.
4. The firm performance variable showed a Cronbach's alpha value of 0.798 and composite reliability of 0.860. With a value above 0.7, this variable is considered reliable.
5. Based on SmartPLS 4.0 processing, all variables met the required reliability threshold, with composite reliability exceeding 0.7. In addition, Cronbach's alpha for each variable is above 0.7,

indicating good internal consistency and alignment with standards. Thus, this study is eligible to enter the next stage of analysis.

Convergent Validity Test

Sugiyono (2022) explains the importance of validity tests, which ensure that measurement instruments can be relied on when making measurements in research, so that the data obtained can be considered valid.

Table 3. Outer Loading

Variabel	Self-Efficacy	Individual Entrepreneurial Orientation (IEO)	Sustainable Entrepreneurship	Firm Performance
X1.1	0.770			
X1.2	0.720			
X1.3	0.700			
X1.4	0.710			
X1.5	0.765			
X2.1		0.700		
X2.2		0.718		
X2.3		0.772		
X2.4		0.718		
X2.5		0.795		
M.1			0.706	
M.2			0.744	
M.3			0.792	
M.4			0.785	
M.5			0.712	
Y.1				0.767
Y.2				0.769
Y.3				0.727
Y.4				0.738
Y.5				0.714

The explanation of the SmartPLS 4.0 output in Figure 1 is as follows:

1. The self-efficacy variable was measured using 5 indicators: X1.1 = 0.770; X1.2 = 0.720; X1.3 = 0.700; X1.4 = 0.710; X1.5 = 0.765. All indicators above 0.7 can be considered to meet the criterion for convergent validity.
2. Individual entrepreneurial orientation (IEO) variables were measured using 5 indicators: X2.1 = 0.700; X2.2 = 0.718; X2.3 = 0.772; X2.4 = 0.718; X2.5 = 0.795. All indicators above 0.7 can be considered to meet the criterion for convergent validity.
3. The variables of sustainable entrepreneurship were measured with 5 indicators: M.1=0.706; M.2=0.744; M.3=0.792; M.4=0.785; M.5=0.712. All indicators above 0.7 can be considered to meet the criterion for convergent validity.
4. The firm performance variable was measured with 5 indicators: Y.1=0.767; Y.2=0.769; Y.3=0.727; Y.4=0.738; Y.5=0.714. All indicators above 0.7 can be considered to meet the criterion for convergent validity.

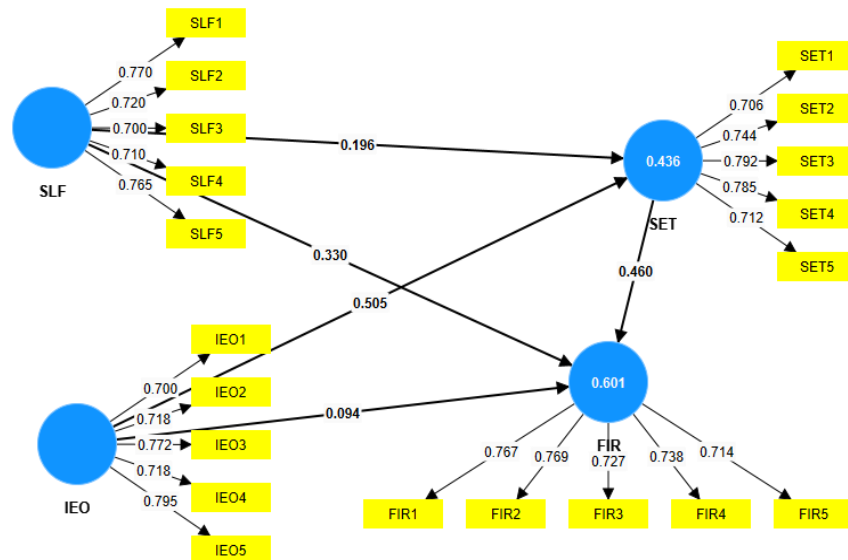


Figure 2. Model SmartPLS
Source: SmartPLS 4.0 Output

Discriminating Validity Test

Discriminant validity refers to the assessment of a construct's validity, estimating the measurement of the indicators in each block. (Ningsih & Hermawan, 2019) The existence of discriminant validity is known to compare AVE values and relationships among other constructs in the model. If the square root of AVE > 0.50, the discriminant validity has been established.

Table 4. Nilai Average Variance Extracted (AVE)

Variabel	Average Variance Extracted (AVE)
Self-efficacy	0.538
Individual Entrepreneurial Orientation (IEO)	0.550
Sustainable Entrepreneurship	0.560
Firm Performance	0.552

Based on Table 4, the AVE value of each variable is:

Self-efficacy=0.538, individual entrepreneurial orientation (IEO)= 0.550, sustainable entrepreneurship=0.560 and firm performance=0.552. This research model was shown to meet the criteria for discriminant validity, as indicated by AVE values greater than 0.50 for all variables.

For the square root value of AVE, each variable is shown in Table 4, namely:

Self-efficacy=0.734, individual entrepreneurial orientation (IEO)=0.741, sustainable entrepreneurship=0.749 dan firm performance=0.743. The resulting numbers exceed the correlation values between other latent constructs. This indicates that each latent construct has a greater ability to vary its indicators than the others. Thus, the Fornell-Larcker criteria are met, thereby achieving discriminatory validity.

Inner Model Analysis

The Inner Model is used to predict the causal relationships among latent variables based on the theoretical foundation. SmartPLS 4.0 is used up to the Bootstrapping stage to assess the path coefficient and its significance, as well as blindfolding to calculate a measure of predictive ability. measures the extent to which endogenous constructs explain their own variances, while assessing

the contribution of exogenous constructs. Thus, structural model testing assesses both the strength of causal relationships and the model's predictive ability.

Table 5. Fornell-Larcker Criterion

Construct	Firm Performance	Individual Entrepreneurial Orientation	Sustainable Entrepreneurship	Self-efficacy
Firm Performance	0.743			
Individual Entrepreneurial Orientation (IEO)	0.629	0.741		
Sustainable Entrepreneurship	0.706	0.646	0.749	
Self-efficacy	0.656	0.720	0.559	0.743

R-Square

R^2 in PLS-SEM indicates how much the latent variable is free to explain the bound latent variable. This value signifies the model's predictive strength, with a range of 0-1. Higher values mean the model is better at explaining dependent variance.

Table 6. R-Square Value

Variable	R-Square	R-Square Adjusted
Sustainable Entrepreneurship	0.436	0.426
Firm Performance	0.601	0.590

The value of the sustainable entrepreneurship variable is 0.436. This shows that self-efficacy and individual entrepreneurial orientation (IEO) accounted for 43.6% of the variation in sustainable entrepreneurship. In comparison, the remaining 56.4% was explained by factors not included in the model. The value of the firm performance variable of 0.601 indicates that the variables self-efficacy, individual entrepreneurial orientation (IEO), and sustainable entrepreneurship together explain 60.1% of the variation in firm performance; the remaining 39.9% is explained by factors not included in the model.

Table 7. Goodness of Fit Test Results

Variable	Saturated Model	Estimated Model
SRMR	0.086	0.086
d_ ULS	1.544	1.544
d_ G	0.597	0.597
Chi-Square	364.056	364.056
NFI	0.678	0.678

The results of the fit model test in Table 6 are consistent with the description by Ghozali & Kusumadewi (2023), indicating a good fit (SRMR = 0.086 < 0.10).

Hypothesis

Table 8. Direct Effect Test Results

Jalur	Original sample (O)	Sample mean (M)	Std dev (STDEV)	T-statistic	P-Value
Self-efficacy → Sustainable Entrepreneurship	0.196	0.207	0.118	1.659	0.097
Individual Entrepreneurial Orientation (IEO) → Sustainable Entrepreneurship	0.505	0.504	0.098	5.157	0.000

Self-efficacy → Firm Performance	0.330	0.339	0.085	3.886	0.000
Individual Entrepreneurial Orientation (IEO) → Firm Performance	0.094	0.103	0.099	0.951	0.342
Sustainable Entrepreneurship → Firm Performance	0.460	0.456	0.087	5.280	0.000

The hypothesis testing process, which is carried out using the Smart PLS application, is the final stage of the test. This is done by examining the bootstrapping results for each path, which serves as the cornerstone of the hypothesis test. The value of the t-table is compared to the value of the statistics. The null hypothesis is accepted if the resulting t-statistic is smaller than 1.96, whereas the alternative hypothesis is accepted if the t-statistic is larger. The t-table value of 1.96 was set based on a 95% confidence level and a 5% margin of error (0.05). Provides guidance: if T-statistics > T-tables, the null hypothesis is rejected and the alternative hypothesis is accepted. Kumalasari et al., (2025). Hypothesis tests are differentiated by the parameters tested, sample size, and the distribution of the data. This method is essential in scientific research and data-driven decision-making, as it allows researchers to draw more accurate conclusions and reduces the risk of misinterpretation of results.

From Table 8, it can be concluded:

1. The first hypothesis was rejected (self-efficacy → sustainable entrepreneurship), which had an original sample value of 0.196 (positive), a t-statistic of $1.659 < 1.96$, and a p-value of $0.097 > 0.05$. The influence of self-efficacy on sustainable entrepreneurship is positive but still weak.
2. The second accepted hypothesis (individual entrepreneurial orientation (IEO) → sustainable entrepreneurship) has a value of 0.505 (positive), a t-statistic of $5.157 > 1.96$, and a p-value of $0.000 < 0.05$. The influence of individual entrepreneurial orientation (IEO) is positive and significant on sustainable entrepreneurship.
3. The third accepted hypothesis (self-efficacy → firm performance) has a value of 0.330 (positive), a t-statistic of $3.886 > 1.96$, and a p-value of $0.000 < 0.05$. The effect of self-efficacy on firm performance is positive and significant.
4. The fourth hypothesis (individual entrepreneurial orientation (IEO) → firm performance) had a value of 0.094 (positive), a t-statistic of $0.951 < 1.96$, and a p-value of $0.342 > 0.05$. Individual entrepreneurial orientation (IEO) has a positive but still weak effect on firm performance.
5. The fifth accepted hypothesis (sustainable entrepreneurship → firm performance) has a coefficient value of 0.460 (positive), a t-statistic of $5.280 > 1.96$, and a p-value of $0.000 < 0.05$. The positive and significant influence of sustainable entrepreneurship on firm performance.

Table 8, it shows two mediation paths through the variable sustainable entrepreneurship:

1. The t-value is 1.729, and the p-value is 0.084, so the indirect path from self-efficacy to firm performance through sustainable entrepreneurship is not significant. This indicates that sustainable entrepreneurship does not mediate the relationship. So, the relationship pattern formed is known as the direct-only effect, where the effect of self-efficacy on firm performance is direct.
2. The t-value = 3.338 and p-value = 0.001; then the mediation path of individual entrepreneurial orientation (IEO) → sustainable entrepreneurship → firm performance was declared significant. Thus, sustainable entrepreneurship serves as a full mediator (indirect-only mediation), meaning that individual entrepreneurial orientation (IEO) affects company performance only after being converted into sustainable entrepreneurial practices.

Table 9. Indirect Effect Test Results

Mediation	Indirect Effects (O)	T-Statistics	p-value	Conclusion
Self-Efficacy -> Sustainable Entrepreneurship -> Firm Performance	0.090	1.729	0.084	Direct-only effect
Individual Entrepreneurial Orientation (IEO) -> Sustainable Entrepreneurship -> Firm Performance	0.232	3.338	0.001	Indirect-Only Mediation

The Influence of Self-Efficacy on Sustainable Entrepreneurship

The results of the analysis show that self-efficacy has a positive but not significant impact on sustainable entrepreneurship ($\beta = 0.196$; $t = 1.659$; $p > 0.05$). This means that an individual's belief in their own capacity is not strong enough to be a key determinant of the implementation of sustainable entrepreneurship, despite its tendency to encourage sustainable practices. Theoretically, these results show that self-efficacy, as a psychological factor, does not automatically translate into sustainable entrepreneurial practices without the support of implementable capabilities and a more concrete strategic orientation. In the context of the wood processing industry in Lumajang Regency, which has a high level of trade-off between economic performance and sustainability (Alshebami, 2023), the implementation of sustainable entrepreneurship is influenced more by operational and strategic factors than by individual beliefs alone. Consistent with research by Sadiq et al. (2025), the implementation of sustainable entrepreneurship depends not only on individual factors but also on organizational capacity and environmental support. More precisely, self-efficacy in this study is positioned as a supporting factor rather than the primary determinant. Thus, its contribution to sustainable entrepreneurship needs to be supported by strengthening implementation capabilities.

These findings contradict the initial expectations based on social cognitive theory (Alshebami, 2023), which predicted that self-confidence should be a strong driver of strategic behavior. This insignificance indicates that in the context of a timber processing industry fraught with trade-offs and regulatory pressures, individual beliefs alone are not enough to drive sustainability practices; structural factors such as organizational support, government policies, and adequate implementing capacity are needed.

The Influence of Individual Entrepreneurial Orientation (IEO) on Sustainable Entrepreneurship

The results of the analysis indicate that individual entrepreneurial orientation (IEO) has a positive and significant impact on sustainable entrepreneurship ($\beta = 0.505$; $t = 5.157$; $p < 0.05$). Structurally, the magnitude of this coefficient indicates that individual entrepreneurial orientation (IEO) is the primary determinant of sustainable entrepreneurial practices among individual variables. This shows that the dimensions of innovation, proactivity, and risk-taking courage inherent in individual entrepreneurial orientation (IEO) are strongly related to driving the transformation of business strategies towards a sustainability orientation. Thus, the correlation formed is strong and shows a consistent relationship between individual entrepreneurial orientation and the implementation of sustainable entrepreneurship. In line with Salehe et al. (2024), this research demonstrates that entrepreneurial orientation positively contributes to sustainable entrepreneurship. The three main dimensions of orientation are innovation, proactivity, and the courage to take risks, which have been shown to encourage the adoption of sustainable business practices. Empirical support is also obtained from those who affirm the significant role of strategic factors and organizational capabilities. So, the results of this study support Sadiq et al. (2025)'s position that individual entrepreneurial orientation (IEO) is a vital determinant of sustainable entrepreneurship, especially in industries that rely on natural resources.

In the context of the wood processing industry in Lumajang Regency, which faces trade-offs among raw material availability, regulatory pressures, and market demands, individuals with a high

entrepreneurial orientation tend to be better able to identify opportunities and implement adaptive, sustainable business practices.

The Effect of Self-efficacy on Firm Performance

The test results showed that self-efficacy had a positive and significant effect on firm performance ($t = 0.330$; $pF = 3.886 > 1.96$; $p = 0.000 < 0.05$). These findings indicate that an individual's confidence in their abilities contributes significantly to a company's performance, though the influence is moderate. Thus, the higher the self-efficacy, the better the company's performance, especially in decision-making and responsiveness to changes in the business environment. Shen et al. (2021) found that self-efficacy has a significant positive impact on firm performance, thereby confirming the analysis's results. People's trust in their own abilities has proven crucial to improving company performance, as it can increase confidence, resilience, and quality decision-making. In the context of the wood processing industry in Lumajang Regency, self-efficacy bolsters business actors' confidence amid market pressures, limited raw materials, and operational demands. However, the characteristics of highly complex industries with trade-offs indicate that the influence of self-efficacy on performance is not entirely independent and remains shaped by other structural and strategic factors. Consistent with prior literature, self-efficacy is positively related to performance. However, it tends to serve as a supporting factor whose success depends on the ability to implement it in a specific business context.

The Influence of Individual Entrepreneurial Orientation (IEO) on Firm Performance

The test results showed that individual entrepreneurial orientation (IEO) had a positive but insignificant effect on firm performance ($\beta = 0.094$; $t = 0.951 < 1.96$; $p = 0.342 > 0.05$). Structurally, this indicates that, despite the positive direction of the relationship, the influence of individual entrepreneurial orientation (IEO) on company performance is relatively weak and fails to explain significant variation in performance in the research model. Thus, an increase in an individual's entrepreneurial orientation is not directly followed by an increase in the company's performance. Theoretically, these findings suggest that an individual's entrepreneurial orientation is not automatically converted into organizational performance in the absence of an adequate implementation mechanism. In the context of the wood processing industry in Lumajang Regency, which faces limited raw materials, regulatory pressures, and the complexity of (Rauch et al., 2009) trade-offs between economic efficiency and environmental sustainability, innovation and the courage to take risks owned by business actors cannot necessarily be effectively implemented into performance outputs. The influence of individual entrepreneurial orientation (IEO) on company performance is often indirect and mediated by variables (Salehe et al., 2024). Furthermore, the results of this study indicate that individual entrepreneurial orientation (IEO) plays a role as a strategic potential that needs to be converted through certain mechanisms, in this case sustainable entrepreneurship, to have an impact on firm performance. Thus, the insignificance of the direct influence of individual entrepreneurial orientation (IEO) on company performance strengthens the finding that IEO requires a transformation process to become a sustainable business practice to achieve optimal performance.

The Influence of Sustainable Entrepreneurship on Firm Performance

The test results show that sustainable entrepreneurship has a positive and significant effect on firm performance ($\beta = 0.460$; $t = 5.280 > 1.96$; $p = 0.000 < 0.05$). Structurally, the magnitude of this coefficient indicates that sustainable entrepreneurship is a key determinant of company performance in the research model. The correlation is strong and consistent, indicating that the greater the application of sustainable entrepreneurship principles, the higher the company's performance across operational efficiency, competitiveness, and business sustainability. Theoretically, these findings are consistent with the resource-based view (Barney, 1991) and the concept of the triple bottom line (Abid et al., 2024), which emphasize that integrating environmental, social, and economic aspects can be a source of competitive advantage for a company. In the context of the wood processing industry in Lumajang Regency, which faces the complexity of trade-offs among resource

exploitation, regulatory compliance, and market demands, sustainable entrepreneurship serves as a strategic mechanism to manage this balance adaptively. These findings are also consistent with prior literature indicating that sustainability practices contribute positively and significantly to company performance, reinforcing that sustainable entrepreneurship is not merely a normative approach but a business strategy that directly improves firm performance.

The Effect of Self-Efficacy on Firm Performance through Sustainable Entrepreneurship

Based on the test results, the mediation pathway of sustainable entrepreneurship in the relationship between self-efficacy and firm performance was not statistically significant ($\beta = 0.090$; $=1.729 < 1.96$; $=0.084 > 0.05$). So, sustainable entrepreneurship fails to play a mediating role that connects individual self-confidence and company performance. Thus, the effect of self-efficacy on firm performance in this study is a direct-only effect, without going through a sustainability implementation mechanism (Zhao et al., 2010). Empirically, self-efficacy plays a greater role in improving operational performance and direct business decision-making than in encouraging sustainable entrepreneurial practices. In the context of the wood processing industry in Lumajang Regency, which faces the complexities of trade-offs among economic efficiency, limited raw materials, and environmental regulatory pressures, implementing sustainable entrepreneurship requires capabilities that extend beyond individual psychological factors. Theoretically, the results of this study are consistent with social cognitive theory (Alshebami, 2023). Self-efficacy directly affects individual behavior and performance, but it is not always sufficient to drive strategic change without external and structural support. Support for these findings also comes from Sadiq et al. (2025), who reveal that the implementation of sustainability in business is influenced collectively by individual, organizational, and environmental factors. Thus, the insignificance of sustainable entrepreneurship mediation indicates that self-efficacy functions more as an internal factor that directly impacts company performance but has not been translated into sustainability practices that provide added value to firm performance.

The Influence of Individual Entrepreneurial Orientation (IEO) on Firm Performance through Sustainable Entrepreneurship

Based on the test results, the mediation pathway of sustainable entrepreneurship in the relationship between Individual Entrepreneurial Orientation (IEO) and firm performance was statistically significant ($\beta = 0.232$; $t = 3.338 > 1.96$; $p = 0.001 < 0.05$). Structurally, the mediation mechanism is clearly established, with sustainable entrepreneurship serving as the primary transmission channel linking individual entrepreneurial orientation (IEO) to company performance. In addition, the lack of significance of the direct effect of individual entrepreneurial orientation (IEO) on firm performance indicates that the relationship is mediated only indirectly (Zhao et al., 2010). Theoretically, these findings are in line with the concept of entrepreneurial orientation (Rauch et al., 2009), which emphasizes that innovation, proactivity, and the courage to take risks are more effective at improving performance when implemented as part of a concrete business strategy. In the context of the wood processing industry in Lumajang Regency, which faces trade-offs among raw material availability, sustainability demands, and regulatory pressures, individuals' entrepreneurial orientation does not directly translate into performance. Still, it needs to be converted into a sustainable entrepreneurial practice as a strategic capability.

Consistent with Salad et al. (2024), the influence of entrepreneurial orientation on firm performance is mediated by sustainable entrepreneurship. In addition, these findings are also in line with the perspective of the resource-based view (Barney, 1991) and dynamic capability theory (Chandra & Christiani, 2025), which assert that entrepreneurial orientation or resources do not automatically result in performance, but must be converted into strategic capabilities to create a competitive advantage. Thus, sustainable entrepreneurship plays a key role in transforming individual entrepreneurial potential into sustainable company performance.

Dual-Path Mechanism

The most original finding of this study was the discovery of a fundamentally different relationship pattern between the two individual factors studied. Self-efficacy follows the direct-only effect path, where the effect on the company's performance occurs directly without going through sustainable entrepreneurship. In contrast, individual entrepreneurial orientation (IEO) follows indirect-only mediation, whereby its influence on the company's performance occurs only if it is first realized through sustainable entrepreneurial practices. This difference can be explained through the fundamental characteristics of both constructs. Self-efficacy is an affective psychological construct that plays a role in operational and daily decision-making. Self-confidence helps managers withstand pressure, solve problems, and make quick decisions, which directly improves performance. Meanwhile, individual entrepreneurial orientation (IEO) is a strategic behavioral construct that includes innovation, proactivity, and the courage to take risks. This orientation only impacts performance when it translates into tangible actions such as resource efficiency, eco-friendly innovation, and regulatory compliance. In other words, self-efficacy is operational capital, while individual entrepreneurial orientation (IEO) is a strategic potential that requires transformation through sustainability practices.

These findings show that in the context of research, self-efficacy functions more as psychological-operational capital. At the same time, individual entrepreneurial orientation (IEO) represents a strategic potential that requires transformation through sustainability practices. These findings enrich the literature on sustainable entrepreneurship by showing that not all individual factors can be treated equally in a mediation model. Implicitly, efforts to improve company performance need to distinguish strengthening strategies for the two types of individual factors: strengthening self-efficacy can be done directly through managerial training and success experiences, while strengthening individual entrepreneurial orientation (IEO) should be directed at a systematic sustainability transformation program.

CONCLUSION

Based on the evaluation of the outer model, inner model, and hypothesis testing, the proposed model meets the required standards of validity and reliability and adequately explains the relationships among the variables. The findings indicate that the relationships among self-efficacy, individual entrepreneurial orientation (IEO), sustainable entrepreneurship, and firm performance occur through both direct and indirect effects, particularly in the wood processing industry in Lumajang Regency, which is characterized by complex economic and environmental trade-offs. The results of the SmartPLS 4.0 analysis show that self-efficacy has a positive but insignificant effect on sustainable entrepreneurship, indicating that individual confidence alone is insufficient to directly encourage the implementation of sustainable entrepreneurial practices. In contrast, IEO has a positive and significant effect on sustainable entrepreneurship, demonstrating that innovation, proactivity, and willingness to take risks are important factors in developing sustainability-oriented businesses. Self-efficacy has a positive and significant direct effect on firm performance, whereas IEO has a positive but insignificant direct effect, suggesting that entrepreneurial orientation alone is insufficient to improve performance without an effective implementation mechanism. Furthermore, sustainable entrepreneurship has a positive and significant effect on firm performance, confirming its role as an important strategic factor in improving company performance. The mediation analysis shows that sustainable entrepreneurship does not mediate the relationship between self-efficacy and firm performance, indicating a direct-only effect. However, sustainable entrepreneurship significantly mediates the relationship between IEO and firm performance, indicating an indirect-only mediation effect in which the influence of IEO on firm performance operates through sustainable entrepreneurial practices.

Theoretically, this study contributes to entrepreneurship and strategic management by integrating social cognitive theory, entrepreneurial orientation, and the resource-based view. The findings demonstrate that individual psychological factors, particularly self-efficacy, require concrete implementation mechanisms to contribute to sustainable practices and firm performance. Sustainable entrepreneurship is therefore positioned not merely as a normative concept but as a strategic capability that connects entrepreneurial orientation with firm performance and contributes to competitive advantage in resource-based industries. Practically, wood processing businesses in Lumajang Regency need to strengthen sustainable entrepreneurial practices through efficient raw material utilization, environmental compliance, environmentally friendly innovation, and the effective implementation of innovation, proactivity, and appropriate risk-taking. Policymakers should support these efforts through accessible certification, business assistance, capacity-building programs, and balanced regulations that consider both economic and environmental interests. Nevertheless, this study is limited by its focus on a limited number of variables, a single industry sector, and one geographical area, which restricts the generalizability of the findings. Future research should incorporate additional variables, such as organizational characteristics, government policies, and market dynamics, employ mixed-method approaches, and expand the research to other regions and resource-based industries to provide broader and more comprehensive insights.

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