

Exploring the Mediating Role of Digital Supply Chain in The relationship Between Green Promotion and Sustainable Small Business Performance among Indonesian MSMEs

Yolanda Rahim¹, Istimaroh^{1*}

¹ Faculty of Economic Business and Politics,
Universitas Muhammadiyah Kalimantan Timur, Samarinda 75124, INDONESIA

*Corresponding Author: iis.istimaroh@gmail.com
DOI: <https://doi.org/10.30880/jstard.2026.08.01.007>

Article Info

Received: 14 September 2025
Accepted: 20 May 2026
Available online: 30 June 2026

Keywords

Digital supply chain, green price,
East Borneo, sustainable small
business performance, SDGs

Abstract

The increasing demand for environmentally sustainable business practices has encouraged MSMEs to adopt green pricing strategies and digital transformation initiatives. However, the mechanism through which green pricing contributes to sustainable business performance remains insufficiently understood, particularly in developing economies. This study examines the effect of green price on sustainable small business performance and investigates the mediating role of the digital supply chain among MSMEs in East Kalimantan, Indonesia. A quantitative approach was employed using survey data collected from 306 MSME owners and managers. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with Smart-PLS 4.0. The findings reveal that green price does not have a significant direct effect on sustainable small business performance. However, green price significantly influences the adoption of digital supply chain practices, which in turn positively affect sustainable business performance. The results further demonstrate that the digital supply chain fully mediates the relationship between green price and sustainable small business performance. These findings suggest that green pricing strategies alone are insufficient to enhance sustainability outcomes unless supported by digital supply chain capabilities. This study contributes to the sustainability and MSME literature by highlighting the critical role of digital supply chain transformation in converting environmentally oriented pricing strategies into sustainable business performance.

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a critical role in economic development by generating employment opportunities, stimulating entrepreneurship, and contributing significantly to regional and national income. In Indonesia, MSMEs represent the backbone of the economy and are expected to support sustainable economic growth while adapting to increasing environmental and technological challenges. As sustainability becomes a strategic priority, MSMEs are encouraged to adopt environmentally responsible business practices that align with national development goals and global sustainability agendas.

One increasingly important strategy is the implementation of green business practices that balance economic performance with environmental responsibility. Simultaneously, the rapid advancement of digital technologies has transformed business operations, enabling firms to enhance efficiency, responsiveness, and competitiveness through digitalized supply chain systems. The integration of sustainability-oriented pricing strategies and digital supply chain capabilities has therefore become a relevant issue for MSMEs seeking long-term business sustainability.

1.1 Green Pricing and Sustainable Business Performance

Green pricing refers to pricing strategies that incorporate environmental considerations into product pricing decisions. According to Chrysna et al., (2022), green pricing reflects environmental costs associated with production processes while maintaining product quality and value. Such strategies are intended to encourage sustainable consumption and support environmentally responsible business practices.

Previous studies have reported mixed findings regarding the effectiveness of green pricing. Research by Arbel et al., (2018) suggests that environmentally conscious consumers are willing to pay premium prices for green products when perceived benefits exceed additional costs. Similarly, Elvierayani and Choiroh (2020) found that green marketing initiatives positively influence consumers' purchase intentions. However, evidence regarding the direct contribution of green pricing to organizational sustainability performance remains inconclusive, particularly among MSMEs operating in emerging economies. These inconsistencies indicate the need to explore mechanisms through which green pricing may contribute to sustainable business outcomes.

1.2 Digital Supply Chain and Sustainable Business Performance

The emergence of Industry 4.0 has accelerated the digital transformation of supply chain activities across industries. A digital supply chain (DSC) utilizes advanced technologies, including big data analytics, cloud computing, and real-time information systems, to improve operational efficiency, transparency, and decision-making processes (Ageron et al., 2020).

Empirical studies have demonstrated that supply chain digitalization contributes to improved organizational performance by enhancing coordination, reducing waste, and optimizing resource utilization (Zekhnini et al., 2021). Furthermore, digital supply chains support sustainability objectives through improved energy efficiency, reduced carbon emissions, and more effective resource management (Bebortta et al., 2023). Despite these benefits, research examining the role of digital supply chains within MSMEs remains limited, especially in developing countries where digital adoption levels vary significantly.

1.3 Theoretical Foundation

This study is grounded in the Resource-Based View (RBV) and Dynamic Capability Theory (DCT). RBV argues that organizational performance is influenced by valuable, rare, inimitable, and non-substitutable resources. In this context, digital supply chain capabilities can be viewed as strategic resources that enable MSMEs to achieve sustainable competitive advantages.

Meanwhile, Dynamic Capability Theory emphasizes an organization's ability to integrate, build, and reconfigure internal and external competencies in response to changing business environments. Green pricing reflects a sustainability-oriented strategic capability, while digital supply chain implementation represents a dynamic capability that enables firms to transform sustainability initiatives into improved business performance. Together, these theories provide a strong foundation for understanding the relationship among green pricing, digital supply chains, and sustainable small business performance.

1.4 Research Gap and Problem Statement

Although green pricing and digital supply chain practices have received increasing scholarly attention, limited research has investigated their combined effects on sustainable small business performance. Existing studies have largely examined these constructs independently, while empirical evidence concerning the mediating role of digital supply chains remains scarce.

Furthermore, the context of MSMEs in East Kalimantan presents a unique setting for investigation. The region's strategic importance as the location of Indonesia's new capital city (IKN) has intensified the need for environmentally sustainable and technologically adaptive business practices. However, little empirical evidence explains how digital supply chains facilitate the translation of green pricing strategies into sustainable business outcomes among MSMEs operating in this region.

1.5 Research Objectives and Contributions

To address these gaps, this study examines the effect of green pricing on sustainable small business performance and investigates the mediating role of digital supply chains among MSMEs in East Kalimantan, Indonesia. The study contributes to the literature by extending the application of RBV and Dynamic Capability Theory within the context of MSME sustainability and digital transformation. Practically, the findings provide valuable insights for policymakers, business owners, and development agencies seeking to strengthen MSME competitiveness while advancing sustainability objectives consistent with the Sustainable Development Goals (SDGs).

2. Methods

This research aims to gather structured field data to understand how the use of digital supply chains mediates the relationship between green pricing and sustainable small business performance. A descriptive quantitative research design utilizing a survey method was selected based on the theoretical framework and data requirements. As noted by (Braun et al. 2021) survey research is a non-experimental approach where the researcher does not control how subjects participate but instead collects data in the field. This study employs a deductive method to test its hypotheses. The focus of the research is on micro, small, and medium enterprises (MSMEs), examined within the contexts of green pricing, digital supply chains, and sustainable small business performance.

Based on 2023 BPS data, the population in this study comprises all micro, small, and medium enterprises (MSMEs) in East Kalimantan Province, totaling 460,147 business actors, and to determine the required sample size from this population, the study employs the Krejcie and Morgan theory table (Cohen et al., 2017), given that the MSME data under study is distributed across several cities, the sample determination table indicates that a sample size of 384 respondents is necessary to adequately represent this population.

This study employs both primary and secondary data, with field data being essential for acquiring up-to-date information. Given the population of 460,147 MSMEs and the requirement for 384 sample respondents, a questionnaire is deemed the most suitable and effective method for data collection, considering both the population and sample sizes. The data collection period is planned from May 20 to June 15, 2025.

Data collection in this study was conducted by distributing structured questionnaires through two channels: online via Google Forms and offline through direct distribution. The questionnaire instrument contains 18 statement items designed to measure three research variables. The green price variable was operationalized through five items adapted from various studies by (Fliegel 2025), (Quaye, Tunaru, and Tunaru 2024), (Braik, Saleh, and Jaaron 2023), (Kim, Rhim, and Yang 2021). The measurement of the digital supply chain variable used six items developed from (Zaid, Farooqi, and Azmi 2025). Meanwhile, the sustainable small business performance variable was assessed using seven statement items adapted from (F. A. Khan, Sheikh, and Zainab 2024) and (Rajabi, El-Sayegh, and Romdhane 2022). All statements were arranged using a four-point Likert scale (1 = strongly agree to 4 = strongly disagree) to prevent response bias by eliminating a neutral option, thereby encouraging participants to provide more definitive responses.

Data will be gathered by distributing questionnaires to MSMEs throughout East Kalimantan Province. Following Krejcie & Morgan's guidelines, 384 respondents constitute the necessary sample size. The information obtained from the 384 respondents will undergo analysis and evaluation through validity and reliability tests. Validity tests evaluate the alignment of the indicators with the examined variables, while reliability tests gauge the consistency of the data collection instruments. For data analysis, this study will utilize Smart-PLS and the Statistical Package for the Social Sciences (SPSS).

2.1 Research Model and Hypotheses

2.1.1 Research Model

Researchers use a conceptual framework as a tool to analyze planning and argue the assumptions under discussion. The conceptual framework shows how the theory relates to various factors identified as important issues (Castro Torres & Akbaritabar, 2024). Researchers also consider the conceptual framework as a model for their research.

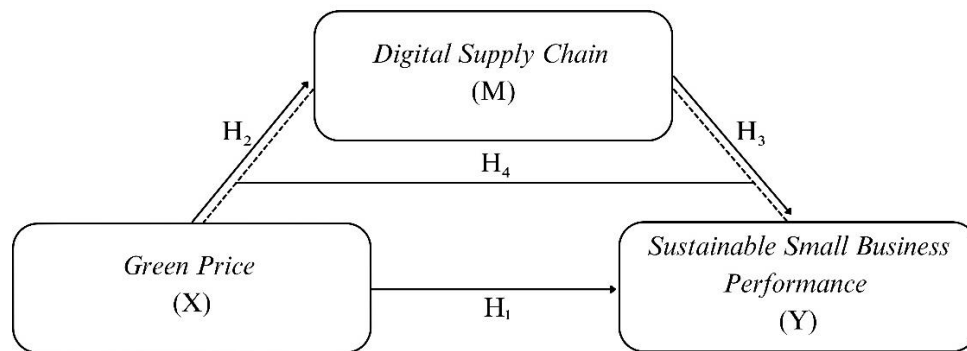


Fig. 1 Model research

Fig. 1 illustrates that Green Price, as an independent variable in this study, has both a direct and indirect influence (H1) on the dependent variable, Sustainable Small Business Performance. In addition to its direct influence, the independent variable also affects the dependent variable indirectly through the mediator variable (Digital Supply Chain). Conceptually, changes in variable Green Price impact variable Digital Supply Chain, which then indirectly influences the dependent variable. Therefore, Digital Supply Chain serves a mediating role in how Green Price can effectively affect Sustainable Small Business Performance both directly and indirectly for analysis.

2.1.2 Hypothesis Model

In the context of managing operational resources to enhance resilience in small businesses, green pricing plays a strategic role in promoting sustainable performance, (Fliegel 2025) emphasized that green pricing must take into account environmental impacts and resource constraints faced by small businesses. Similarly, (Le and Ferasso 2022) noted that policymakers within small businesses hold a responsibility to ensure the sustainability of development that is socially and environmentally responsible. This study proposes the following hypotheses:

- H1. The effect Green Price on Sustainable Small Business Performance
- H2. The effect Green Price on Digital Supply Chain
- H3. The effect Digital Supply Chain on Sustainable Small Business performance
- H4. The effect Green Price on Sustainable Small Business performance through Digital Supply Chain

3. Results and Discussion

This study examines Green Price as a pricing strategy that incorporates environmental regulations through product premiums and quality parity. Positioned as a driver of the green economy, Green Price is expected to enhance consumer interest in environmentally friendly products while covering additional ecological costs, and ultimately supporting sustainable practices among Micro, Small, and Medium Enterprises (MSMEs). Using a quantitative survey approach, the research sampled 384 respondents from a population of 460,147 MSME actors across East Kalimantan, with selection based on predefined criteria. Primary data were collected via field-distributed questionnaires, and the instrument was rigorously tested through content validity involving five experts (two academics and three practitioners) as well as a pilot study with 50 respondents to ensure clarity and reliability.

Of the 384 distributed questionnaires, 328 were returned, and after data screening, 306 valid responses were retained for final analysis. Invalid data were identified by examining low or zero variance across constructs and by excluding respondents who completed the survey significantly faster than a reasonable timeframe. The final sample was characterized by key descriptors including MSME domicile, gender, position, sector, years of operation, and annual revenue, ensuring a comprehensive basis for testing the hypothesized relationships between Green Price, green economy outcomes, and sustainable MSME performance.

Table 1 Respondent characteristics

Demographic	Frequency	Percentage
Usable respondent data	306	100%
MSME Domicile		
Samarinda	110	35.9%
Kutai Timur	81	26.5%
Kutai Kartanegara	29	9.5%
Bontang	23	7.5%
Balikpapan	21	6.9%
Paser	17	5.6%
Kutai Barat	16	5.2%
Penajam Paser Utara	6	2.0%
Berau	2	0.7%
Mahakam Ulu	1	0.3%
Gender		
Woman	162	52.9%
Man	144	47.1%
Position		
Owner	253	82.7%
Manager	53	17.3%
MSMEs Sectors		
Food and Beverage (F&B)	137	44.8%
Trade	80	26.1%
Creative Industries	43	14.1%
Agribusiness	20	6.5%
Small-scale Manufacturing	16	5.2%
Marine Sectors	10	3.3%

The distribution of participants in MSMEs shows that Samarinda had the highest representation at 35.9%, followed by East Kutai at 26.5% and Kutai Kartanegara at 9.5%. Balikpapan (6.9%) and Bontang (7.5%) also demonstrated notable participation, while Mahakam Ulu (0.3%) and Berau (0.7%) had the fewest respondents. This distribution largely reflects the researchers' ease of access to data collection in specific areas, with factors such as the effectiveness of questionnaire distribution networks, the availability of respondents, and the density of MSMEs influencing the results of sample collection. Consequently, the variations in participant numbers are more indicative of the data collection methods' effectiveness rather than the actual distribution of MSMEs across the regions.

In terms of gender representation, a majority of respondents were women (52.9%), compared to men at 47.1%. This suggests that women play a significant role in the management of MSMEs in various areas of East Kalimantan. These findings are consistent with the global trend of increasing female participation in entrepreneurship, particularly within sectors such as culinary (44.8%) and trade (26.1%). Additionally, a significant proportion of respondents were business owners (82.7%), while the remaining 17.3% were managers. This indicates that most MSMEs are directly operated by their owners, which may reflect traditional or small-scale business structures. The predominance of owners also suggests that decision-making is often centralised around individuals.

3.1 Result

3.1.1 The Result of Validity and Reliability

The next step is to conduct a reliability test. This test is performed only after the indicators and variables have met the necessary requirements and passed the criteria for discriminant validity. The purpose of the reliability test is to ensure that the indicator items for each construct yield consistent and stable data outputs, which are essential for accurately measuring each variable analyzed in the related research.

Table 2 *The result of validity & reliability*

Constructs	Item	Loading	Cronbach' Alpha	Composite Reliability	Average Variance Extracted (AVE)	Rho-A
GPC	GPC1	0.783	0.787	0,858	0.602	0,845
	GPC2	0.846				
	GPC3	0.747				
	GPC5	0.722				
DSC	DSC1	0.790	0.593	0,809	0.516	0,719
	DSC2	0.648				
	DSC3	0.770				
	DSC4	0.654				
SSBP	SSBP1	0.731	0.720	0,809	0.516	0,765
	SSBP2	0.745				
	SSBP5	0.632				
	SSBP7	0.757				

Overall, this table illustrates the reliability of the research instrument used to measure the relevant variables. The consistency in the results from both methods (alpha and rho_c) enhances the reliability of the data. This allows researchers to confidently proceed with the analysis, assured that the measurement results are stable and can be replicated.

In discriminant validity testing, the current state of a measuring instrument used in the research is evaluated. This process determines whether the instrument can effectively and accurately measure what it is intended to assess in a specific study. During this evaluation, existing indicator items are also scrutinised for their relationships with constructs in other variables. This ensures that indicators within one construct do not overlap with those in different variables.

Table 3 *Discriminant validity*

Constructs	DSC	GPC	SSBP
DSC	0.718		
GPC	0.278	0.776	
SSBP	0.251	0.140	0.718

These results highlight that the research instrument exhibits discriminant validity, which means that each variable can measure a distinct concept without any overlap. The low correlations between the variables (for instance, 0.251 between Digital Supply Chain and Sustainable Small Business Performance) indicate that, although a relationship exists, these constructs remain empirically separate. As a result, the researchers maintain that the measurement of each variable is not affected by other variables, thereby enabling more accurate subsequent analyses, such as regression or Structural Equation Modelling (SEM).

3.1.2 The Result of Hypotheses

In the PLS-SEM approach, hypothesis testing is conducted by examining the correlation between constructs using path coefficients. Techniques are then used to obtain the values needed to assess their significance using t-statistics and p-values. A research hypothesis is considered significant if the p-value is less than or equal to 0.05 (≤ 0.05) or the t-statistic is greater than or equal to 1.96 (≥ 1.96). If the assessment results are as above, H_0 is rejected and H_1 is accepted. This indicates a relationship between one variable and another in the model. Below are the results from the hypothesis measurement conducted in this study.

Table 4 *The hypothesis result*

Hypothesis and Relationship	Original Sample (o)	T-statistics	P-values	Result
H1: GPC → SSBP	0.076	1.184	0.237	Not Significant
H2: GPC → DSC	0.278	5.270	0.000	Significant
H3: DSC → SSBP	0.230	3.939	0.000	Significant
H4: GPC → DSC → SSBP	0.064	3.089	0.002	Significant

Based on the path coefficient test results presented in the table above, it can be concluded that only one direct relationship is not significant, namely the effect of Green Price (GPC) on Sustainable Small Business Performance (SSBP). Meanwhile, the other three relationships were proven to be significant.

The results of the direct hypothesis test show that the effect of Green Price on Sustainable Small Business Performance is not significant (p-value = 0.237). However, Green Price has a significant effect on Digital Supply Chain (t-statistic = 5.270; p-value = 0.000), so the second hypothesis (H2) is accepted. Similarly, Digital Supply Chain has a significant effect on sustainable MSME performance (t-statistic = 3.939; p-value = 0.000), which supports the acceptance of the third hypothesis (H3). These findings indicate that although green price does not directly improve MSME performance, it has an indirect effect through digital supply chain intermediaries.

The indirect effect test (H4) revealed that Green Price significantly impacted Sustainable Small Business Performance through the mediation of Digital Supply Chain (t-statistic = 3.089; p-value = 0.002). This means that Digital Supply Chain successfully mediated the relationship between Green Price and MSME performance, although its direct effect was not significant. This finding aligns with the research title, which emphasizes the mediating role of Digital Supply Chain.

The practical implication is that efforts to improve the sustainable performance of MSMEs in East Kalimantan should prioritize strengthening digital supply chains as a bridge between green pricing policies and business outcomes. For example, digital training programs or incentives for technology adoption could strengthen this mediation. However, the low R-square indicates that the model still needs to be expanded by including additional mediator variables, such as product innovation or financial support, to provide a more holistic picture.

3.2 Discussion

3.2.1 Analyzing the Influence of Green Price on Sustainable Small Business Performance

The results of the study indicate that the direct effect of green pricing on sustainable small business performance is insignificant. This implies that green pricing for MSMEs in East Kalimantan has not resulted in direct improvements in sustainable performance. Several factors may contribute to this phenomenon, including low consumer awareness of environmentally friendly products and the challenges MSMEs face in effectively communicating the added value of green pricing to the market. Additionally, the prevalence of micro-scale MSMEs with limited income—78.8% earn between IDR 10 and 50 million per year—may cause reluctance to raise product prices, even for environmental reasons. This finding is consistent with research by (Stall-Meadows and Davey 2013), which suggests that consumers do not fully respond to green products when the benefits are unclear. Consequently, there is a need for an educational strategy targeted at both consumers and MSMEs to ensure that green pricing is viewed as added value rather than merely a cost burden.

3.2.2 Analyzing the Influence of Green Prices on the Digital Supply Chain

The context of the digital supply chain is closely linked to the transformation of technology use, aimed at enhancing operational efficiency and fostering sustainable productivity in small businesses. According to the findings of Khan and Qianli (2017) providing technological support to green raw material suppliers can promote price stability and encourage sustainability in the manufacturing sector. In the local context, (Fataron 2022) emphasized the necessity for MSMEs in Indonesia to adopt a green marketing strategy rooted in Islamic values, particularly in terms of pricing mechanisms and the adoption of environmentally friendly technologies. This strategy has the potential to enhance the relationship between green pricing and the digital transformation of supply chains through effective waste management and improved process efficiency.

Based on the analysis, green pricing positively and significantly impacts the digital supply chain. This indicates that MSMEs implementing green pricing are more likely to adopt digital technology within their supply chains. This finding aligns with the research of (Nasiri et al. 2020), which suggests that digital transformation enhances operational efficiency, particularly in managing environmentally friendly raw materials. In East Kalimantan, the

highest indicators were the adoption of digital payments (DSC6) and the use of internal technology (DSC1), demonstrating that MSMEs have leveraged digitalization to promote sustainable practices.

The upcoming construction of the National Capital City (IKN) is expected to serve as a catalyst for further digitalization and technological advancement in Kalimantan, particularly in East Kalimantan (Istimaroh et al., 2023). However, challenges such as limited infrastructure in rural areas and a lack of digital skills pose significant obstacles. Consequently, the government must enhance training programs and improve access to technology to fully leverage the impact of green pricing on supply chain digitalization.

3.2.3 Analyze the Influence of Digital Supply Chain on Sustainable Small Business Performance

The research results show that the digital supply chain has a significant and positive impact on sustainable small business performance. This finding indicates that MSMEs have successfully utilized technology adoption in the supply chain to improve their sustainable performance. The aforementioned research findings align with the results of a study by Istimaroh et al. (2022) entitled "The Impact of Supply Chain Responsiveness on Sustainable Performance: A Field Study of Manufacturing Companies in Malaysia," published in the journal *Research in Management of Technology of Business*. According to them, the impact of SCR (Supply Chain Responsiveness) has a positive impact on SP (Sustainable Performance), especially in the context of the Malaysian manufacturing industry. This research further strengthens the evidence that increasing supply chain capabilities, both through responsiveness and digitalization, is a crucial driver for achieving sustainable performance.

3.2.4 Analyzing the Influence of Green Price on Sustainable Small Business Performance Through Digital Supply Chain

This study illustrates that the digital supply chain serves as a crucial mediator between green pricing and the performance of sustainable small businesses. Specifically, it suggests that green pricing can enhance the performance of sustainable micro, small, and medium enterprises (MSMEs) when paired with the adoption of digital technology within the supply chain. This conclusion aligns with the theory proposed by (Ishfaq, Davis-Sramek, and Gibson 2022), emphasizing the significance of digital transformation for achieving sustainable operations. However, the low R-squared value indicates the presence of numerous other factors outside the model, such as government policies or financial support, that also affect MSME performance. Consequently, policy recommendations should focus on integrating green pricing with digitalization initiatives, such as providing technical training or technology subsidies, enabling MSMEs to fully leverage this mediation to attain long-term sustainability.

4. Conclusion

The results of this study indicate that implementing environmentally friendly pricing and digital transformation in the supply chain complement each other in fostering competitive and sustainable micro, small, and medium enterprises (MSMEs) in East Kalimantan. However, their contribution, in percentage terms, does not have a direct and significant effect. The Green Price strategy, supported by the Digital Supply Chain system, can provide economic value while maintaining social and environmental balance. This aligns with the sustainable development goals (SDGs). Nonetheless, the effects are minimal and nearly insignificant. Specifically, the impact of green pricing on sustainable small business performance yields insignificant results. Factors such as social aspects, technological unpreparedness, and low consumer awareness of environmentally friendly products influence these findings.

The contribution of this research is to provide an empirical overview of the growth of MSMEs in East Kalimantan. It is anticipated that the findings will be further explored in relation to green pricing and other variables to yield relevant insights, particularly concerning the relationship between green pricing and the Sustainable Development Goals (SDGs).

Acknowledgement

The researcher wishes to express gratitude for the academic journey, guided by Ms. Istimaroh, whose mental support inspired her to persevere. The researcher also thanks the MSME respondents for their contributions to the research data collection.

Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

All authors confirm contribution to the paper. All authors reviewed the results and approved the final version of the manuscript.

References

- Ageron, B., Bentahar, O., & Gunasekaran, A. (2020a). Digital supply chain: challenges and future directions. *Supply Chain Forum*, 21(3), 133–138. <https://doi.org/10.1080/16258312.2020.1816361>
- Ageron, B., Bentahar, O., & Gunasekaran, A. (2020b). Digital supply chain: challenges and future directions. *Supply Chain Forum*, 21(3), 133–138. <https://doi.org/10.1080/16258312.2020.1816361>
- Ajeng Nugrahaning, D., Frigate, R., Elin Diyah, S., & Ulimaz, M. (2023). Analysis of Factors that Determine Investment Attractiveness in Balikpapan City. *IOP Conference Series: Earth and Environmental Science*, 1186(1), 12022. <https://doi.org/10.1088/1755-1315/1186/1/012022>
- Arbel, Y., Ben-Shahar, D., Horsky, S., & Versano, N. (2018a). Time-to-Sell of New Green Housing. *Journal of Sustainable Real Estate*, 10(1), 33–58. <https://doi.org/10.1080/10835547.2018.12091911>
- Arbel, Y., Ben-Shahar, D., Horsky, S., & Versano, N. (2018b). Time-to-Sell of New Green Housing. *Journal of Sustainable Real Estate*, 10(1), 33–58. <https://doi.org/10.1080/10835547.2018.12091911>
- Bahrainizad, M., & Abedini, F. (2025). Investigating the interaction effects of Halal label and green label by price on the purchase intention of Halal organic food. *Journal of Foodservice Business Research*, 28(3), 556–585. <https://doi.org/10.1080/15378020.2023.2265797>
- Bakrie, R. R., Atikah Suri, S., Nabila, Sahara, A., H Pratama, V., & Firmansyah. (2024). Pengaruh Kreativitas UMKM Serta Kontribusinya Di Era Digitalisasi Terhadap Perekonomian Indonesia. *Jurnal Ekonomi Dan Bisnis*, 16(2), 82–88. <https://doi.org/10.55049/jeb.v16i2.308>
- Braik, A., Saleh, Y., & Jaaron, A. A. M. (2023). Green marketing practices and organizational sustainable performance in developing countries context: an empirical study. *Journal of Foodservice Business Research*, 27(6), 769–809. <https://doi.org/10.1080/15378020.2023.2205337>
- Braun, V., Clarke, V., Boulton, E., Davey, L., & McEvoy, C. (2021). The online survey as a qualitative research tool. *International Journal of Social Research Methodology*, 24(6), 641–654. <https://doi.org/10.1080/13645579.2020.1805550>
- Castro Torres, A. F., & Akbaritabar, A. (2024). The use of linear models in quantitative research. *Quantitative Science Studies*, 5(2), 426–446. https://doi.org/10.1162/qss_a_00294
- Chrysna, V. Y., Sumarsono, H., & Widyaningrum, P. W. (2022a). Pengaruh Green Trust, Green Price, dan Eco Brand Terhadap Keputusan Pembelian. *E-Journal Ekonomi Bisnis Dan Akuntansi*, 9(2), 65. <https://doi.org/10.19184/ejeba.v9i2.32466>
- Chrysna, V. Y., Sumarsono, H., & Widyaningrum, P. W. (2022b). Pengaruh Green Trust, Green Price, dan Eco Brand Terhadap Keputusan Pembelian. *E-Journal Ekonomi Bisnis Dan Akuntansi*, 9(2), 65. <https://doi.org/10.19184/ejeba.v9i2.32466>
- Cohen, L., Manion, L., & Morrison, K. (2017). Research Methods in Education. In *Research Methods in Education*. <https://doi.org/10.4324/9781315456539>
- Elvierayani, R. R., & Choirih, F. (2020a). Pengaruh Green Product dan Green Price Terhadap Minat Beli Konsumen Pada Produk Tupperware (Studi Kasus Pada Mahasiswa Manajemen FE UNISLA). *Mandalika Mathematics and Educations Journal*, 2(1), 67–75. <https://doi.org/10.29303/jm.v2i1.1751>
- Elvierayani, R. R., & Choirih, F. (2020b). Pengaruh Green Product dan Green Price Terhadap Minat Beli Konsumen Pada Produk Tupperware (Studi Kasus Pada Mahasiswa Manajemen FE UNISLA). *Mandalika Mathematics and Educations Journal*, 2(1). <https://doi.org/10.29303/jm.v2i1.1751>
- Fataron, Z. A. (2022). Elaborasi Green Marketing dan Islamic Marketing Ethics (Studi Kasus UMKM di Indonesia). *Jurnal Ilmiah Ekonomi Islam*, 8(1), 80. <https://doi.org/10.29040/jiei.v8i1.4250>
- Fliegel, P. (2025). 'Brown' Risk or 'Green' Opportunity? The Dynamic Pricing of Climate Transition Risk on Global Financial Markets. *SSRN Electronic Journal*, 145(April), 108456. <https://doi.org/10.2139/ssrn.4502257>
- Hariati, Ikhsan, & Nur, D. S. (2018). Pengembangan Usaha Mikro, Kecil Dan Menengah (Ukm) Di Provinsi Kalimantan Timur. *Jurnal Paradigma (JP)*, 7(2), 84–93.
- Ishfaq, R., Davis-Sramek, B., & Gibson, B. (2022). Digital supply chains in omnichannel retail: A conceptual framework. *Journal of Business Logistics*, 43(2), 169–188. <https://doi.org/10.1111/jbl.12277>

- Istimaroh, I., Cholid, I., Setiaji, B., & Seman, N. A. A. (2023). The analysis of lean and agile supply chain strategy on environmental performance with mediating of supply chain responsiveness: Evidence from manufacturing industries in Malaysia. *Sustainable Social Development*, 1(3), 1–17. <https://doi.org/10.54517/ssd.v1i3.2265>
- Khan, F. A., Sheikh, Dr. A. A., & Zainab, F. (2024). The Impact of SMEs Capability for Service Innovation and Its Tactical Green Marketing on Sustainable Business Performance. *Journal of Small Business Strategy*, 34(2), 95–108. <https://doi.org/10.53703/001c.117659>
- Khan, S. A. R., & Qianli, D. (2017). Impact of green supply chain management practices on firms' performance: an empirical study from the perspective of Pakistan. *Environmental Science and Pollution Research*, 24(20), 16829–16844. <https://doi.org/10.1007/s11356-017-9172-5>
- Kim, B. C., Rhim, H., & Yang, H. (2021). Price competition or technology improvement? An investigation of green car technology. *International Journal of Production Research*, 59(9), 2800–2816. <https://doi.org/10.1080/00207543.2020.1740347>
- Le, T. T., & Ferasso, M. (2022). How green investment drives sustainable business performance for food manufacturing small- and medium-sized enterprises? Evidence from an emerging economy. *Corporate Social Responsibility and Environmental Management*, 29(4), 1034–1049. <https://doi.org/https://doi.org/10.1002/csr.2252>
- Nasiri, M., Ukko, J., Saunila, M., & Rantala, T. (2020). Managing the digital supply chain: The role of smart technologies. *Technovation*, 96–97(March), 102121. <https://doi.org/10.1016/j.technovation.2020.102121>
- Quaye, E., Tunaru, D., & Tunaru, R. (2024). Green-adjusted share prices: A comparison between standard investors and investors with green preferences. *Journal of Financial Stability*, 74. <https://doi.org/10.1016/j.jfs.2024.101314>
- Rajabi, S., El-Sayegh, S., & Romdhane, L. (2022). Identification and assessment of sustainability performance indicators for construction projects. *Environmental and Sustainability Indicators*, 15(June), 100193. <https://doi.org/10.1016/j.indic.2022.100193>
- Sahoo, S., Islam, N., Kumar, A., & Mangla, S. K. (2025). Exploring relationship between digital dexterity, supply chain quality management, agility and performance – Empirical evidence from Indian B2B manufacturers. *Industrial Marketing Management*, 127, 44–61. <https://doi.org/https://doi.org/10.1016/j.indmarman.2025.03.008>
- Siagian, H., Tarigan, Z. J. H., & Jie, F. (2021). Supply chain integration enables resilience, flexibility, and innovation to improve business performance in covid-19 era. *Sustainability (Switzerland)*, 13(9). <https://doi.org/10.3390/su13094669>
- Stall-Meadows, C., & Davey, A. (2013). Green marketing of apparel: consumers' price sensitivity to environmental marketing claims. *Journal of Global Fashion Marketing*, 4(1), 33–43. <https://doi.org/10.1080/20932685.2012.753293>
- Sujid Bebertta, Subhranshu Sekhar Tripathy, Umar Muhammad Modibbo, I. A. (2023a). *An optimal fog-cloud offloading framework for big data optimization in heterogeneous IoT networks*.
- Sujid Bebertta, Subhranshu Sekhar Tripathy, Umar Muhammad Modibbo, I. A. (2023b). *An optimal fog-cloud offloading framework for big data optimization in heterogeneous IoT networks*. <http://dx.doi.org/10.1016/j.dajour.2023.100295>
- V. Alcácer, & V., & Cruz-Machado. (2019). *Scanning the Industry 4.0: A Literature Review on Technologies for Manufacturing Systems* (pp. 2215–0986). Engineering Science and Technology, an International Journal.
- Zaid, M., Farooqi, R., & Azmi, S. N. (2025). Driving sustainable supply chain performance through digital transformation: the role of information exchange and responsiveness. *Cogent Business and Management*, 12(1). <https://doi.org/10.1080/23311975.2024.2443047>
- Zekhnini, K., Cherrafi, A., Bouhaddou, I., Chaouni Benabdellah, A., & Bag, S. (2021). A model integrating lean and green practices for viable, sustainable, and digital supply chain performance. *International Journal of Production Research*, 60(21). <https://doi.org/10.1080/00207543.2021.1994164>
- Zekhnini, K., Cherrafi, A., Bouhaddou, I., Chaouni Benabdellah, A., & Bag, S. (2022). A model integrating lean and green practices for viable, sustainable, and digital supply chain performance. *International Journal of Production Research*, 60(21), 6529–6555. <https://doi.org/10.1080/00207543.2021.1994164>