Proceedings Series on Proceedings of Multidisciplinary Sciences, Volume 2, No. 1
International Conference of Business, Education, Health, and Scien-Tech (ICBENS)
ISSN: -

The Influence of Product Innovation and Competitiveness on MSME Sustainability in Palopo City

Munawir[1]*, Erwina[2], Mursida[3], Muh. Chaeran[4]

[1234]Management Study Program, Universitas Andi Djemma, 91921, Indonesia

*Corresponding Author Email: munawir@unanda.ac.id

Abstract
Micro, Small, and Medium Enterprises (MSMEs) play a vital role in Indonesia's economic structure. However, amid technological developments and global market openness, MSMEs face new challenges that require adaptation through product innovation and increased competitiveness. This study aims to analyze the influence of product innovation and competitiveness on MSME sustainability in Palopo City. The research employs a quantitative method with a survey approach. Data were collected through questionnaires distributed to 100 MSME actors in Palopo City using incidental sampling technique. Data analysis was performed using multiple linear regression with SPSS software. The research results show that: (1) product innovation and competitiveness simultaneously have a significant effect on MSME sustainability; (2) product innovation has a significant effect on MSME sustainability; (3) competitiveness has a significant effect on MSME sustainability. The research results indicate that amid a competitive and rapidly changing business environment, MSMEs must build innovation capacity while maintaining operational efficiency to achieve long-term sustainability. This study contributes to the development of MSME management theory and provides practical guidance for entrepreneurs and regulators in formulating sustainable MSME empowerment strategies.

Keywords: Competitiveness; Product_innovation; MSME_sustainability; Micro_enterprises; Small_enterprises

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a very important role in Indonesia's economic structure. Based on data from the Ministry of Cooperatives and SMEs in 2023, the number of MSMEs reached more than 65 million business units and contributed approximately 60% to the national gross domestic product and absorbed more than 90% of the workforce in Indonesia [1]. The strategic role of MSMEs not only encompasses local economic empowerment and unemployment reduction, but also creates innovations that are relevant to domestic market needs.

However, along with technological developments and global market openness, MSMEs now face various new challenges. On one hand, digitalization and globalization open up great opportunities for broader markets. On the other hand, MSMEs are required to adapt quickly to changes in consumer preferences, technology, and competition intensity [2]. Therefore, the ability of MSMEs to remain sustainable depends heavily on important aspects related to product innovation and competitiveness.

MSME sustainability not only refers to the business's ability to survive in the long term, but also encompasses economic, social, and environmental aspects. In the economic context, MSMEs must be able to maintain profitability and operational efficiency. From the social side, they are expected to provide benefits to the surrounding community including creating jobs and empowering local communities. Meanwhile, environmentally, sustainability requires MSMEs

to carry out environmentally friendly business practices and be responsible for the impacts generated [3].

The dynamics of globalization and technological development have demanded MSMEs to be able to compete not only in local markets, but also in international markets [4]. In the context of national development, maintaining MSME sustainability is an important part of the sustainable development goals agenda, especially goal 8 on decent work and economic growth and goal 9 on industry, innovation and infrastructure [5]. Thus, studying the factors that influence MSME sustainability becomes relevant and urgent as a basis for formulating more effective policies and business strategies.

Product innovation is one of the key factors in maintaining MSME sustainability. According to Maulidina and Haryono (2020), product innovation is a company's effort to create and develop products that are different from before, whether in form, function, packaging, or technology, to meet changing consumer needs and tastes [9]. Research conducted by Utami (2021) shows that MSMEs that routinely carry out product innovation have higher sales performance and customer loyalty compared to MSMEs that do not innovate [24].

On the other hand, competitiveness is also a crucial factor in determining MSME sustainability. Porter (1990) in his book "The Competitive Advantage of Nations" explains that competitiveness is the ability of a country, company, or business sector to maintain its position in international markets through sustainable competitive advantage [11]. Research by Rahmawati and Fauzan (2022) states that competitiveness has a significant effect on MSME sustainability, where globally competitive MSMEs are better able to survive amid digital disruption and economic crises [15].

This research was conducted in Palopo City, South Sulawesi, where MSMEs play an important role in supporting the local economy. Based on data from the Palopo City Cooperatives and SME Office in 2024, there are thousands of MSME actors spread across various sectors [6]. However, they still face challenges in terms of innovation capacity, competitiveness, and business sustainability. The majority of MSME actors operate in the trade and culinary sectors on a micro scale, where businesses are still traditional in nature and have limited capital and technology.

Based on the research gap and empirical conditions in the field, this study aims to analyze the influence of product innovation and competitiveness on MSME sustainability in Palopo City. The research results are expected to provide theoretical contributions to the development of MSME management science and practical contributions for business actors and policy makers in formulating appropriate strategies to maintain MSME sustainability.

2. Methodology

This study uses a quantitative approach with survey method. The research was conducted in Palopo City, South Sulawesi Province, with MSME actors as the research population. The research took place from July to August 2025.

2.1. Population and Sample

The population in this study consists of all MSMEs in Palopo City. Sample determination uses the Hair et al theory approach where the sample size is 5 times the number of indicators or 10 times the number of indicators. Since there are 14 indicators in this study, the minimum

sample is 5 × 14 = 70 samples. However, considering sample adequacy, this study uses 100 samples. The sampling technique uses incidental sampling technique.

2.2. Data Collection Techniques

Data collection was carried out through:

1. Observation: Direct observation of MSME business activities
2. Interviews: Direct question and answer with respondents
3. Questionnaire: Distribution of statements with alternative answers using a Likert scale of 1-5

2.3. Variables and Measurement

This study uses three variables:

1. **Product Innovation (X1):** Measured through indicators of new product development, improvement of old products, application of new technology, and product adaptation to market needs
2. **Competitiveness (X2):** Measured through indicators of product quality, human resource capability, technology used, competitive environment, and productivity
3. **MSME Sustainability (Y):** Measured through indicators of business expansion, achievement of break-even point, market share growth, rapid response to consumer demand, and increased customer loyalty

2.4. Data Analysis

Data analysis uses multiple linear regression with the equation:

$$\mathbf{Y = a + b_1X_1 + b_2X_2 + e}$$

Where:

- Y = MSME Sustainability
- a = Constant
- b_1, b_2 = Regression coefficients
- X_1 = Product Innovation
- X_2 = Competitiveness
- e = Error term

Before regression analysis, validity and reliability tests were conducted as well as classical assumption tests including normality test, multicollinearity test, and heteroscedasticity test. Data processing was performed using SPSS version 25.

3. Results and Discussion

3.1. Research Results

The research results show respondent characteristics as presented in the following table:

Table 1. Respondent Characteristics by Gender

Gender	Number (Person)	Percentage (%)
Male	57	57.0
Female	43	43.0
Total	**100**	**100.0**

Table 1 shows that the majority of respondents are male (57%) compared to female (43%), indicating the dominance of male MSME actors in Palopo City.

Table 2. Respondent Characteristics by Age

Age (Years)	Number (Person)	Percentage (%)
<20	1	1.0
20-30	36	36.0
31-40	37	37.0
>40	26	26.0
Total	**100**	**100.0**

Table 2 shows that the 31-40 age group dominates (37%), followed by the 20-30 age group (36%), indicating that MSME actors are dominated by productive age.

Table 3. Respondent Characteristics by Education Level

Education	Number (Person)	Percentage (%)
Elementary School (Incomplete)	2	2.0
Elementary School Graduate	7	7.0
Junior High School Graduate	10	10.0
Senior High School Graduate	37	37.0
Diploma Graduate	9	9.0
Bachelor's Degree Graduate	32	32.0
Postgraduate Graduate	3	3.0
Total	**100**	**100.0**

Table 3 shows that senior high school graduates constitute the largest group (37%), followed by bachelor's degree graduates (32%), indicating a relatively good education level among MSME actors.

Table 4. Respondent Characteristics by Business Duration

Business Duration	Number (Person)	Percentage (%)
1-5 Years	52	52.0
6-10 Years	29	29.0
11-15 Years	12	12.0
>15 Years	7	7.0
Total	**100**	**100.0**

Table 4 shows that the majority of MSMEs are young businesses with 1-5 years of operation (52%), indicating dynamism and growth of new MSMEs in Palopo City.

3.1.2. Respondent Perceptions of Research Variables

Table 5. Respondent Perceptions of Product Innovation Variable (X1)

Indicator	Average Score	Category
New Product Development	3.75	Agree
Improvement of Old Products	3.96	Agree
Application of New Technology	3.72	Agree
Product Adaptation to Market Needs	3.97	Agree
Overall Average	**3.85**	**Agree**

Table 5 shows that all product innovation indicators are in the agree category with the highest score on product adaptation to market needs indicator (3.97), indicating that MSME actors have good market orientation.

Table 6. Respondent Perceptions of Competitiveness Variable (X2)

Indicator	Average Score	Category
Product Quality	3.86	Agree
Human Resource Capability	3.69	Agree
Technology Used	3.74	Agree
Competitive Environment	3.86	Agree
Productivity	3.98	Agree
Overall Average	**3.82**	**Agree**

Table 6 shows that the productivity indicator has the highest score (3.98), while human resource capability has the lowest score (3.69), indicating the need for improving human resource capacity.

Table 7. Respondent Perceptions of MSME Sustainability Variable (Y)

Indicator	Average Score	Category
Market Expansion	3.61	Agree
Achievement of Break-Even Point	4.06	Agree
Market Share Growth	3.77	Agree
Rapid Response to Consumer Demand	4.05	Agree
Increased Customer Loyalty	4.14	Agree
Overall Average	**3.92**	**Agree**

Table 7 shows that the increased customer loyalty indicator has the highest score (4.14), while market expansion has the lowest score (3.61), indicating that MSMEs are more focused on retaining existing customers than market expansion.

3.1.3. Validity and Reliability Tests

Table 8. Validity Test Results

Variable	Item	r-calculated	r-table	Description
Product Innovation (X1)	IP1	0.827	0.361	Valid
	IP2	0.779	0.361	Valid
	IP3	0.658	0.361	Valid
	IP4	0.715	0.361	Valid
	IP5	0.719	0.361	Valid
	IP6	0.596	0.361	Valid
	IP7	0.593	0.361	Valid
	IP8	0.579	0.361	Valid
Competitiveness (X2)	DS1	0.468	0.361	Valid
	DS2	0.394	0.361	Valid
	DS3	0.789	0.361	Valid
	DS4	0.818	0.361	Valid
	DS5	0.579	0.361	Valid

Table 8. Validity Test Results

Variable	Item	r-calculated	r-table	Description
Sustainability (Y)	DS6	0.804	0.361	Valid
	DS7	0.408	0.361	Valid
	DS8	0.434	0.361	Valid
	DS9	0.494	0.361	Valid
	DS10	0.413	0.361	Valid
	KB1	0.414	0.361	Valid
	KB2	0.581	0.361	Valid
	KB3	0.695	0.361	Valid
	KB4	0.738	0.361	Valid
	KB5	0.512	0.361	Valid
	KB6	0.793	0.361	Valid
	KB7	0.733	0.361	Valid
	KB8	0.491	0.361	Valid
	KB9	0.543	0.361	Valid
	KB10	0.472	0.361	Valid

Table 8 shows that all statement items have r-calculated values > r-table (0.361), with the highest value on item IP1 (0.827) and the lowest on DS2 (0.394), but all items are declared valid.

Table 9. Reliability Test Results

Variable	Cronbach's Alpha	N of Items	Description
Product Innovation (X1)	0.837	8	Reliable
Competitiveness (X2)	0.776	10	Reliable
MSME Sustainability (Y)	0.762	10	Reliable

Table 9 shows that all variables have Cronbach's Alpha values > 0.60, with the highest reliability on the product innovation variable (0.837), indicating good internal consistency across all research instruments.

3.1.4. Classical Assumption Tests

Normality Test:

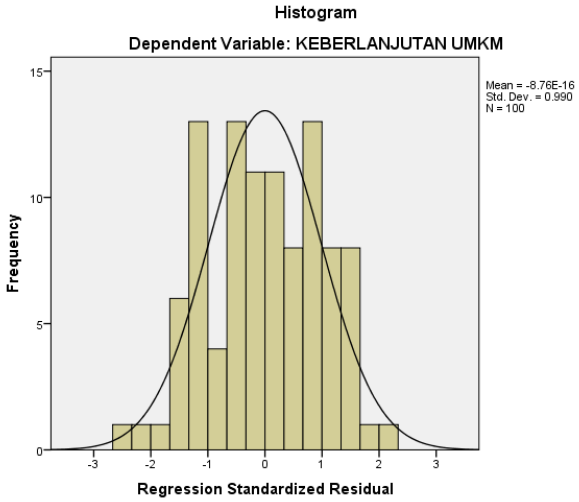

Figure 1. Normality Test Histogram

Based on Figure 1, the histogram graph shows that the data is normally distributed with a distribution pattern approaching a normal curve. This indicates that the normality assumption is met.

Heteroscedasticity Test:

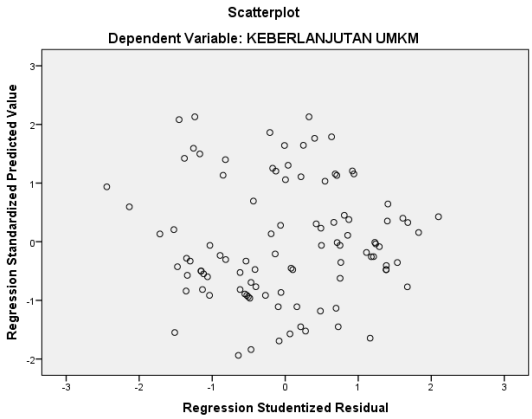

Figure 2. Heteroscedasticity Test Scatterplot

Based on Figure 2, the scatterplot shows that points are randomly scattered around zero on the Y-axis, not forming certain patterns such as widening, narrowing, or wavy. This indicates that there are no heteroscedasticity problems in the regression model.

Multicollinearity Test

Table 10. Multicollinearity Test Results

Variable	Tolerance	VIF	Description
Product Innovation (X1)	0.830	1.205	No multicollinearity
Competitiveness (X2)	0.830	1.205	No multicollinearity

Criteria: Tolerance > 0.1 and VIF < 10

Table 10 shows that there are no multicollinearity problems because the VIF values of both variables (1.205) < 10 and tolerance (0.830) > 0.1, indicating no high correlation between independent variables.

3.1.5. Multiple Linear Regression Analysis

Table 11. Multiple Linear Regression Analysis Results

Model	Coefficient	Std. Error	Beta	t-calculated	Sig.
(Constant)	8.326	3.899	-	2.136	0.035
Product Innovation (X1)	0.684	0.102	0.554	6.683	0.000
Competitiveness (X2)	0.257	0.102	0.209	2.525	0.013

Table 11 shows that the product innovation coefficient (0.684) is greater than competitiveness (0.257), indicating that product innovation has a stronger influence on MSME sustainability. All coefficients are significant at $\alpha = 0.05$.
The regression equation obtained is:

$$\mathbf{Y = 8.326 + 0.684X_1 + 0.257X_2}$$

The regression equation obtained shows that:

1. The constant value of 8.326 means that without product innovation and competitiveness, sustainability is valued at 8.326
2. The product innovation coefficient of 0.684 means that each one-unit increase in innovation increases sustainability by 0.684
3. The competitiveness coefficient of 0.257 means that each one-unit increase in competitiveness increases sustainability by 0.257

3.1.6. Hypothesis Testing

Table 12. F Test Results (Simultaneous)

Model	Sum of Squares	df	Mean Square	F-calculated	Sig.
Regression	1221.524	2	610.762	39.126	0.000
Residual	1514.186	97	15.610	-	-

Table 12. F Test Results (Simultaneous)

Model	Sum of Squares	df	Mean Square	F-calculated	Sig.
Total	2735.710	99	-	-	-

Table 12 shows F-calculated value (39.126) > F-table with significance 0.000 < 0.05, proving that product innovation and competitiveness simultaneously have a significant effect on MSME sustainability.

Table 13. t Test Results (Partial)

Variable	t-calculated	t-table	Sig.	Description
Product Innovation (X1)	6.683	1.660	0.000	Significant
Competitiveness (X2)	2.525	1.660	0.013	Significant

Table 13 shows that both independent variables have t-calculated > t-table (1.660) with significance < 0.05, indicating that partially both have a significant effect on MSME sustainability.

Table 14. Coefficient of Determination

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.668	0.447	0.435	3.95097

Table 14 shows R^2 value = 0.447, meaning that 44.7% of the variation in MSME sustainability can be explained by product innovation and competitiveness, while the remaining 55.3% is explained by other factors outside the research model.

3.2. Discussion

3.2.1. Simultaneous Effect of Product Innovation and Competitiveness on MSME Sustainability

The research results prove that product innovation and competitiveness simultaneously provide a very significant influence on MSME sustainability in Palopo City. The coefficient of determination value of 44.7% shows that the combination of these two variables can explain almost half of the variance in MSME sustainability, indicating substantial predictive strength.

This finding is very consistent with the latest Dynamic Capabilities Framework developed by Teece (2018), where business sustainability in the digital era requires the ability to sense (detect opportunities through innovation), seize (capture opportunities through competitiveness), and reconfigure (reconfigure resources for sustainable adaptation). Data shows that Palopo MSMEs that successfully develop both capabilities simultaneously create co-evolutionary advantage that is difficult for competitors to imitate.

The Ecosystem Innovation Theory perspective that is rapidly developing in contemporary literature (Adner & Kapoor, 2023) is also confirmed in this research. MSMEs in Palopo do not operate in isolation, but are embedded in a local innovation ecosystem where product

innovation and competitiveness mutually reinforce through network externalities. The majority of respondents aged 1-5 years of business (52%) actually shows high ecosystem dynamism, where newcomers bring fresh perspectives that encourage incumbents to increase innovation and competitiveness.

Ambidexterity Theory in the MSME context (O'Reilly & Tushman, 2021) provides a strong theoretical lens to understand this finding. Sustainable MSMEs must be able to perform exploitation (optimizing existing competitiveness) and exploration (exploring new innovations) simultaneously. Research data shows that the productivity indicator obtained the highest score (3.98) in competitiveness, while product adaptation to market needs received the highest score (3.97) in innovation, confirming balanced ambidexterity in Palopo MSMEs.

Digital Transformation Theory (Vial, 2023) is also relevant in this context. Although Palopo MSMEs operate with simple technology, they adopt a digital mindset in managing innovation and competitiveness. The application of new technology obtained a score of 3.72, indicating that digitalization does not have to be in the form of high-tech solutions, but can be in the form of appropriate technology that suits local capacity and needs.

This finding is consistent with research by Antonio and Wibawa (2025) who found that innovation and creativity have a significant effect on MSME business continuity. In the context of increasingly tight and dynamic business competition, MSMEs cannot rely on one aspect alone to survive. Product innovation without adequate competitiveness will find it difficult to maintain market position because competitors can easily imitate and even offer lower prices. Conversely, competitiveness without innovation will make the business stagnant and lag behind competitors who continue to develop following the changing times and consumer preferences. The combination of both creates synergy that strengthens the competitive position of MSMEs sustainably.

From a Resource-Based View (RBV) perspective, this finding confirms that product innovation and competitiveness are strategic resources that are valuable (valuable in creating advantages), rare (not all MSMEs have them with the same quality), inimitable (difficult to imitate because related to learning processes and experience), and non-substitutable (cannot be easily replaced). The combination of these two resources creates sustainable competitive advantage that becomes the foundation of MSME sustainability.

Dynamic Capabilities Theory is also confirmed through this finding, where MSMEs that are able to develop dynamic capabilities in the form of product innovation and competitiveness are more adaptive to changes in the business environment. The capability for sensing (detecting market opportunities), seizing (capturing opportunities through innovation), and transforming (transforming resources to increase competitiveness) becomes crucial in maintaining business sustainability in this volatile and uncertain era.

3.2.2. Effect of Product Innovation on MSME Sustainability

Product innovation proved to be the strongest predictor of MSME sustainability with a regression coefficient of 0.684 and a very high significance level ($t = 6.683$; $p < 0.001$). This finding confirms the Innovation Imperative Hypothesis in contemporary entrepreneurship literature which states that innovation is no longer a choice, but a survival necessity for MSMEs in the era of hyper-competition.

Frugal Innovation Theory developed by Radjou & Prabhu (2021) is very relevant to the context of Palopo MSMEs. Data shows that improvement of old products obtained a higher score (3.96) compared to new product development (3.75), indicating a preference for incremental frugal innovation. This approach allows MSMEs to create more value with less resources, in line with the principle of jugaad innovation which emphasizes flexibility, speed, and cost efficiency.

Open Innovation 3.0 Framework (Yun et al., 2023) provides a new perspective on how Palopo MSMEs innovate. Unlike Open Innovation 1.0 which focuses on R&D collaboration, or Open Innovation 2.0 which emphasizes ecosystem partnership, Open Innovation 3.0 integrates societal challenges and sustainability goals. The product adaptation to market needs indicator which obtained the highest score (3.97) shows that Palopo MSMEs adopt market-driven sustainability innovation.

Digital Innovation Theory (Nambisan et al., 2023) is also reflected in the research findings. Although the application of new technology obtained a score of 3.72 (lowest in product innovation), this does not show weakness but strategic choice to focus on human-centric innovation rather than technology-centric innovation. Recent research shows that MSMEs that focus on user experience innovation are often more sustainable compared to those pursuing technological sophistication.

Sustainable Innovation Framework (Klewitz & Hansen, 2022) is also very relevant. Data shows that Palopo MSMEs not only innovate for profit, but also for social impact. The majority of respondents (69%) have senior high school education and above, indicating adequate sustainability awareness to integrate the triple bottom line (profit, people, planet) in the product innovation process.

Customer Co-creation Theory (Ramaswamy & Ozcan, 2021) provides additional insight. The high score on product adaptation to market needs (3.97) and improvement of old products (3.96) shows that Palopo MSMEs apply a co-creation approach where customers are not only end users but also co-innovators. This approach creates a customer lock-in effect that strengthens business sustainability.

This finding is consistent with research by Utami (2021) who found that MSMEs that routinely carry out product innovation have higher sales performance and customer loyalty compared to MSMEs that do not innovate. This can be explained because product innovation creates differentiation that makes MSME products have a unique value proposition, reduces price-based competition that tends to damage profit margins, increases perceived value in the eyes of consumers so they are willing to pay premium prices, and creates barriers to entry for competitors because innovative products require special knowledge and capability to imitate.

3.2.3. Effect of Competitiveness on MSME Sustainability

Competitiveness proves to have a significant but moderate influence on MSME sustainability ($\beta = 0.257$; $t = 2.525$; $p < 0.05$). This finding is consistent with Competitive Dynamics Theory 2.0 (Chen & Miller, 2023) which states that in the digital era, competitive advantage no longer comes from static positioning but from dynamic maneuvering in a hypercompetitive landscape.

Micro-Multinationals Theory (Cavusgil & Knight, 2023) provides a relevant framework for understanding the competitiveness of Palopo MSMEs. Although operating on a small scale and geographically limited, these MSMEs develop a global mindset through competitive intelligence. The high score on the competitive environment indicator (3.86) shows competitive sensing ability typically possessed by born global firms.

Resource Orchestration Theory (Sirmon et al., 2024) provides a new perspective on how MSMEs with limited resources can achieve competitiveness. Productivity which obtained the highest score (3.98) indicates effective resource bundling and leveraging capabilities. Palopo MSMEs are able to create more output from less input through creative resource orchestration.

Digital Competitiveness Framework (World Economic Forum, 2024) is also reflected in this finding. Technology used obtained a score of 3.74, showing that Palopo MSMEs are not lagging in digital adoption, although not at the digital transformation level. This is in line with the concept of digital gradation where competitiveness can be achieved through selective digitization according to strategic priorities.

Human Capital Theory 4.0 (Becker et al., 2023) provides important insight about the lowest score on human resource capability (3.69). In the knowledge economy era, human capital becomes the ultimate source of competitive advantage. This finding indicates a human capital gap that becomes a competitive bottleneck for Palopo MSMEs. However, the majority of respondents aged 31-40 years (37%) shows potential for experience-based competitiveness that can be developed through continuous learning.

Competitive Intelligence 3.0 Theory (Calof et al., 2023) is also very relevant. The high score on competitive environment (3.86) shows that Palopo MSMEs develop informal competitive intelligence through social networks and market observation. This approach is more cost-effective and actionable compared to formal CI systems used by large companies.

Resilience-Based Competitiveness Model (Linkov et al., 2024) provides a contemporary perspective on competitiveness in the VUCA era (Volatility, Uncertainty, Complexity, Ambiguity). Product quality which obtained a score of 3.86 shows focus on resilience through quality, where quality consistency becomes a competitive moat that protects MSMEs from market volatility.

Ecosystem Competitiveness Theory (Jacobides et al., 2023) explains that individual competitiveness cannot be separated from ecosystem competitiveness. Successful Palopo MSMEs are those that are able to position themselves as value creators in the local business ecosystem, not merely value capturers. This approach creates symbiotic competitiveness that is more sustainable.

This finding is consistent with research by Rahmawati and Fauzan (2022) who stated that competitiveness has a significant effect on MSME sustainability, where competitive MSMEs are better able to survive amid digital disruption and economic crises. Competitiveness provides resilience and sustainability to MSMEs through several mechanisms: operational efficiency that produces healthy profit margins provides a financial buffer to face crises, consistent product quality builds customer trust that lasts in the long term, competent human resources enable rapid adaptation to changes, and high productivity allows competitive prices without sacrificing profitability.

Competitiveness also contributes to achieving the break-even point (BEP) which obtained a high score of 4.06. Operational efficiency which is the core of competitiveness contributes to the financial health of the business through several mechanisms. First, high productivity lowers fixed cost per unit because fixed costs are spread over more output. Second, good product quality reduces the cost of poor quality such as rework, waste, and customer returns. Third, competent human resources increase labor productivity so labor costs per unit are lower. Fourth, appropriate technology can automate processes and reduce variable costs.

Product innovation represents dynamic capability because it involves sensing (detecting changing market needs), seizing (developing products that respond to these opportunities), and transforming (transforming resources and processes to produce innovative products). While competitiveness based on productivity and efficiency more represents operational capabilities that are important but not sufficient for sustainability in a dynamic environment.

4. Conclusion

Based on the research results, it can be concluded as follows:

1. Product innovation and competitiveness simultaneously have a significant effect on MSME sustainability in Palopo City. The combination of both factors is key to business sustainability in an increasingly competitive digital era.
2. Product innovation has a significant effect on MSME sustainability in Palopo City. MSMEs that consistently carry out product innovation are proven to be better able to maintain customer loyalty and expand market share.
3. Competitiveness has a significant effect on MSME sustainability in Palopo City. MSMEs with strong competitiveness are better able to withstand competitive pressures and maintain long-term business continuity.

5. Acknowledgments

The author expresses his deepest gratitude to the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia for financial support through the Regular Fundamental Research Grant scheme for the 2025 Fiscal Year. This research is an additional output of the research entitled Designing a Sustainability Model for MSMEs Through the Application of Financial Technology as an Adaptation Strategy to Economic Challenges and Increasing Global Competitiveness.

6. References

[1] H. Ahl and S. Marlow, "Exploring the false promise of entrepreneurship through a postfeminist critique of the enterprise policy discourse in Sweden and the UK," *Hum. Relations*, vol. 74, no. 1, pp. 41–68, 2021.

[2] A. Amelia, "Analysis of the Impact of Product Innovation on Business Success and Risk in Culinary MSMEs in Yogyakarta," *J. Entrepreneurship and Business*, vol. 15, no. 2, pp. 124–138, 2020.

[3] Y. Ardiansyah and A. Lestari, "The Effect of Product Innovation and Competitiveness on MSME Sustainability in the Post-Pandemic Period," *J. Economics and Business*, vol. 8, no. 3, pp. 215–230, 2023.

[4] N. Fitriani, "Integration of Innovation in MSME Business Strategy towards Economic Resilience," *J. Strategic Management*, vol. 11, no. 4, pp. 78–92, 2023.

[5] N. Fitriani and A. Widodo, "The Role of MSME Sustainability in Economic Stability during the COVID-19 Pandemic," *J. Development Economics*, vol. 19, no. 2, pp. 156–170, 2021.

[6] R. Hidayat and R. Mukhtar, "MSME Competitiveness and Improvement Strategies in the Globalization Era," *J. Business and Management*, vol. 12, no. 3, pp. 45–58, 2020.

[7] R. Indrawati and I. Rachmawati, "MSME Sustainability and Technology Adaptation," *J. Technology and Innovation*, vol. 8, no. 1, pp. 23–35, 2022.

[8] A. Khursheed, "Exploring the role of microfinance in women's empowerment and entrepreneurial development: a qualitative study," *Futur. Bus. J.*, vol. 8, no. 1, pp. 1–13, 2022.

[9] N. Maulidina and T. Haryono, "The Effect of Product Innovation and Product Quality on Consumer Satisfaction (Study on Fashion Product Consumers in Surabaya)," *J. Management and Entrepreneurship*, vol. 22, no. 1, pp. 45–56, 2020.

[10] A. Mulyadi and T. Handayani, "Challenges of Indonesian MSMEs in Increasing Competitiveness," *J. Regional Economics*, vol. 18, no. 3, pp. 134–149, 2021.

[11] M. E. Porter, *The Competitive Advantage of Nations*. New York: Free Press, 1990.

[12] A. Prasetyorini and S. Indarti, "Dimensions of Indonesian MSME Competitiveness," *J. Regional Economics*, vol. 15, no. 2, pp. 89–103, 2020.

[13] D. N. Putri and B. Prasetyo, "Product Innovation as an MSME Excellence Strategy in the Digital Era," *J. Innovation and Technology*, vol. 7, no. 1, pp. 56–68, 2021.

[14] R. Rachmawati and R. Hidayat, "Competitiveness Indicators in MSMEs," *J. Local Business*, vol. 7, no. 4, pp. 178–190, 2021.

[15] N. Rahmawati and A. Fauzan, "Competitiveness and MSME Sustainability in the Digitalization Era," *J. Digital Business*, vol. 6, no. 2, pp. 234–248, 2022.

[16] S. Rahmawari and T. Sari, "MSME Sustainability and Determining Factors in the Digital Era," *J. Modern Management*, vol. 14, no. 1, pp. 89–102, 2021.

[17] N. Riska, "Analysis of the Impact of Globalization on Competitiveness and MSME Sustainability in Surabaya City," *J. Global Economics*, vol. 13, no. 3, pp. 156–172, 2021.

[18] M. Rusli, "Utilization of E-Commerce and Product Quality in Increasing Global Competitiveness of MSMEs," *J. Business Technology*, vol. 9, no. 2, pp. 234–247, 2021.

[19] L. Safitri, "Product Innovation as the Key to MSME Sustainability Amid Digital Competition," *J. Digital Entrepreneurship*, vol. 5, no. 3, pp. 178–192, 2021.

[20] V. Y. Satria, T. S. Anjanarko, A. S. Wibowo, R. Hardyansah, J. Jahroni, A. B. A. Majid, and C. T. I. Dzinnur, "Improving Competitiveness and Sustainability of Micro Enterprises in Surabaya," *Economic Xenization Abdi Masyarakat*, vol. 2, no. 2, pp. 21–31, 2024.

[21] R. K. Singh and R. Kumar, "Strategic issues in supply chain management of Indian SMEs due to globalization: an empirical study," *Benchmarking An Int. J.*, vol. 27, no. 3, pp. 913–932, 2020.

[22] Sugiyono, *Quantitative, Qualitative, and R&D Research Methods*, 23rd ed. Bandung: Alfabeta, 2021.

[23] D. Susanti and H. Prasetyo, "Analysis of Factors Affecting MSME Sustainability in Indonesia," *J. Economic Development*, vol. 18, no. 4, pp. 267–281, 2020.

[24] R. Utami, "Impact of Product Innovation on MSME Performance," *J. Business Innovation*, vol. 9, no. 3, pp. 145–159, 2021.

[25] R. Utami and S. Wahyuni, "Creative Process of Innovation in Increasing MSME Competitiveness," *J. Creativity and Innovation*, vol. 6, no. 2, pp. 234–248, 2021.

[26] T. Utomo, "Dimensions of Product Innovation in MSME Development," *J. Business Development*, vol. 12, no. 4, pp. 189–203, 2018.

[27] F. C. Antonio and Y. Wibawa, "The Effect of Innovation, Knowledge and Creativity on MSME Business Continuity in Padang City," *Impact Journal-Management Business and Finance*, vol. 2, no. 1, pp. 38–50, 2025.