

Determinants of Micro-entrepreneur Competitiveness: The Case of Northern Mindanao, Philippines

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Abstract: This study investigated the factors influencing the competitiveness of micro-enterprises in Northern Mindanao. It analyzed the profiles of these micro-enterprises and evaluated various factors, including financial, technological, human resources, political and regulatory, infrastructure, entrepreneurial, market relations, and product quality, to understand their relative impact on enterprise competitiveness. Employing a descriptive-correlational research design and stratified random sampling, 474 micro-enterprises from the five provinces of Northern Mindanao: Bukidnon, Camiguin, Lanao del Norte, Misamis Occidental, and Misamis Oriental were surveyed via face-to-face interviews using a validated and pre-tested survey instrument. Data were analyzed via frequency counts, percentages, means, Pearson r correlation, stepwise multiple linear regression, and split-sample validation techniques. Most respondents were sole proprietors operating for 3 to 5 years, with 1-2 workers, mainly engaged in wholesale, retail, and service sectors. Results showed good access to financial, technological, political, and regulatory information, strong market relations, and high levels of human resource skills and entrepreneurial competence. Stepwise regression identified human resources, entrepreneurial factors, infrastructure, market relations, and product quality as significant predictors of the competitiveness with product quality as the most significant factor. Prioritizing high product quality enhances customer satisfaction, loyalty, and market differentiation, thereby strengthening competitive advantage. This highlights the need for targeted interventions focused on improving quality standards, implementing effective quality management systems, providing continuous skills development, and expanding access to technical support and quality certification programs to sustain and enhance product excellence.

Keywords: Micro-entrepreneur, Competitiveness, Product Quality Factors, Porter's Theory, Multiple Regression Analysis

1. Introduction

Micro-enterprises play a crucial role in poverty alleviation by providing livelihood opportunities and generating income for marginalized populations. They serve as significant job creators, particularly in developing countries, comprising approximately 70% to 85% of businesses and employing over half of the global workforce. These enterprises contribute substantially to economic stability and community development [1], [2]. However, despite their potential, micro-enterprises globally face numerous challenges that impede their growth and ability to effectively reduce poverty. These challenges include financial constraints, limited technology adoption, human resource constraints, political and regulatory barriers, inadequate infrastructure, entrepreneurial skill gaps, weak market relations, and product quality issues [3], [4], [5].

In the Philippines, especially in Northern Mindanao, same challenges persist. Restricted access to formal financial services compels many to rely on expensive informal credit sources, limiting their capacity for investment and expansion. Furthermore, low levels of technology adoption and limited participation in e-commerce platforms hinder operational efficiency and constrain opportunities for market growth. Regulatory burdens divert resources from core business functions, while inadequate managerial skills reduce operational effectiveness. Additionally, limited networking opportunities restrict collaboration and access to essential market information necessary to sustain



competitiveness. Product quality issues further affect their ability to differentiate themselves in the market and build customer loyalty, thereby impacting overall competitiveness [6], [7], [8], [9], [10].

Despite the critical role of micro-enterprises in regional development and poverty alleviation, there is a paucity of empirical studies focusing explicitly on Northern Mindanao that examine how these enterprises leverage competitiveness factors to enhance their performance and contribution to socio-economic progress. Most existing literature offers regional overviews or theoretical insights but does not specifically focus on the micro-enterprise landscape of Northern Mindanao with evidence-based understanding [11]. Addressing this gap, the present study aims to investigate the key factors affecting the competitiveness of micro-enterprises in Northern Mindanao, including financial, technology, human resources, political and regulatory, infrastructure, entrepreneurial, market relations, and product quality and how these factors can be harnessed to foster sustainable growth and poverty reduction.

This integrated approach is intended to provide comprehensive insights that can inform targeted strategies and policy interventions to support micro-enterprise development and sustainable poverty alleviation in the region.

2. Methodology

The study employed a descriptive-correlational research design to examine the factors influencing the competitiveness of micro-enterprises in Northern Mindanao. Using stratified random sampling, owners or managers from registered micro-enterprises across five provinces—Bukidnon, Camiguin, Lanao del Norte, Misamis Occidental, and Misamis Oriental—were selected based on the inclusion criteria of having operated for at least three years in the wholesale, retail trade, or service sectors. The sample size was initially calculated as 397 using Taro Yamane's formula, with a 20% allowance for nonresponse and outliers, resulting in a target of 497 respondents. After data cleaning, a final valid sample of 474 was utilized. Data were collected through face-to-face interviews using a validated and pretested 47-item questionnaire measured on a 4-point rating scale, which assessed key dimensions including financial, technological, human resources, political and regulatory, infrastructure, entrepreneurial, market relations, and product quality factors. The instrument demonstrated strong reliability, with Cronbach's alpha values ranging from 0.854 to 0.964. Descriptive statistics were employed to profile the respondents, Pearson's correlation analyzed relationships between variables, and stepwise multiple linear regression identified the significant predictors of micro-enterprise competitiveness in the region.

3. Results and Discussion

Table 1: Demographic Profile of Respondents Based on Ownership Structure

Ownership Structure	Frequency	Percentage
Sole Proprietorship	441	93.04%
Partnership	26	5.48%
Corporation	7	1.48%
Total	474	100%

As shown in Table 1, the majority of micro-enterprises are sole proprietorships, totaling 441 respondents or approximately 93.04%. Partnerships make up a smaller proportion with 26 respondents (5.48%), while corporations comprise the least, with 7 respondents (1.48%).

Table 2: Demographic Profile of Respondents Based on the Number of Years in Operation

Years in Operation	Frequency	Percentage
3-5 years	448	94.51%
6-10 years	26	5.49%
Total	474	100%

The duration of operation for the micro-enterprises, detailed in Table 2, offers valuable understanding of their sustainability and stability over time. The majority of the micro-enterprises have been operating for 3-5 years, with 448 respondents (94.51%). This is followed by 26 respondents (5.49%) who have been in business for 6-10 years.

Table 3: Demographic Profile of Respondents Based on the Number of Employees

Number of Employees	Frequency	Percentage
1	102	21.52%
2	149	31.43%
3	94	19.83%
4	45	9.49%
5	28	5.91%
6	29	6.12%
7	16	3.38%
8	9	1.90%
9	2	.42%
Total	474	100%

The data in Table 3, shows that most micro-enterprises are small, with very few employees. The majority have only 1 or 2 employees, with 149 respondents (31.43%) having 2 employees and 102 respondents (21.52%) with just 1 person. A smaller number of businesses have 3 employees (94 respondents, 19.83%) and 4

employees (45 respondents, 9.49%). Very few businesses have more staff, with 5 employees (28 respondents, 5.91%), 6 employees (29 respondents, 6.12%), 7 employees (16 respondents, 3.38%), and only 8 or 9 employees (9 and 2 respondents, 1.90% and 0.42% respectively).

Table 4: Summary of Results of the Overall Mean of All Factors

Factors	Mean	Std. Deviation	Qualitative Interpretation
Financial Factors	2.97	.50	Good access to financial resources
Technology Factors	2.80	.60	Good access to technology
Human Resources Factors	3.01	.54	High human resources skills
Political and Regulatory Factors	2.83	.64	Good access to political and regulatory information.
Infrastructure Factors	3.12	.53	Good access to infrastructure
Entrepreneurial Factors	2.90	.56	High entrepreneurial competence
Market Relations Factors	2.90	.57	Good access to market relations
Product Quality Factors	2.83	.58	Good access to quality products

Micro-enterprises in Northern Mindanao show good access to key competitiveness factors: financial resources (mean 2.97), technology use (2.80), skilled human resources (3.01), political and regulatory information (2.83), reliable infrastructure (3.12), high entrepreneurial competence (2.90), effective market relations (2.90), and quality products (2.83), supporting efficient and competitive operations.

Table 5: Level of Enterprise Competitiveness

Indicator Statements	Mean	Std. Deviation	Qualitative Interpretation
The micro-enterprise has successfully increased its share of customers in the local market.	2.98	.47	Moderately competitive
Most customers of the micro-enterprise are satisfied with its products or services.	3.09	.39	Moderately competitive
The micro-enterprise offers unique products or services that set it apart from competitors.	2.93	.51	Moderately competitive
The micro-enterprise employs competitive and attractive pricing strategies for its target customers.	3.02	.46	Moderately competitive

Indicator Statements	Mean	Std. Deviation	Qualitative Interpretation
The micro-enterprise has effectively entered new markets or expanded its presence within existing markets.	2.69	.67	Moderately competitive
The micro-enterprise customers frequently repurchase its products or services and recommend it to others.	3.09	.43	Moderately competitive
Overall Mean	2.96	.49	Moderately competitive

The evaluation of enterprise competitiveness, as detailed in Table 5, reveals that the micro-enterprise operates at a moderate competitive level, indicated by an overall mean score of 2.96 ($M = 2.96$, $SD = 0.49$). Key strengths include customer share growth, with a mean of 2.98 ($M = 2.98$, $SD = 0.47$), showcasing the successful acquisition of new customers in the local market, though there remains room for further growth. Customer satisfaction averages 3.09 ($M = 3.09$, $SD = 0.39$), reflecting a robust ability to retain loyal patrons, while moderate product differentiation is indicated by a mean score of 2.93 ($M = 2.93$, $SD = 0.51$), suggesting opportunities for greater innovation.

Another objective of the study was to examine the significant relationships among the eight independent variables and the dependent variable. To assess these relationships, Pearson's R Correlation analysis was employed. Furthermore, the results of the test are shown as follows.

Table 6: Correlation Table of the Independent and Dependent Variables

Independent Variables Correlated with Enterprise Competitiveness	Correlation Coefficient	Significance Value	Interpretation
Financial Factors	.436**	.000	Moderate Positive Correlation
Technology Factors	.481**	.000	Moderate Positive Correlation
Human Resources Factors	.606**	.000	Strong Positive Correlation
Political and Regulatory Factors	.638**	.000	Strong Positive Correlation
Infrastructure Factors	.412**	.000	Moderate Positive Correlation
Entrepreneurial Factors	.739**	.000	Strong Positive Correlation
Market Relations Factors	.741**	.000	Strong Positive Correlation
Product Quality Factors	.730**	.000	Strong Positive Correlation

Table 6 shows that among micro-enterprises in Northern Mindanao, market relations factors have the strongest positive correlation with enterprise competitiveness ($r = .741$, $p = .000$), highlighting the critical role of building robust networks and customer relationships in driving business success. In contrast, infrastructure factors exhibit the lowest yet still moderate positive correlation ($r = .412$, $p = .000$), indicating that while infrastructure supports competitiveness, its impact is less pronounced compared to market relations. This suggests that enhancing market connections should be a priority for micro-enterprises aiming to improve competitiveness, while continued investment in infrastructure remains important for operational efficiency.

The results of the Pearson r Correlation, was used to answer the null hypothesis. The null hypothesis was tested at 0.05 level of significance.

Ho1: There is no significant relationship between each of the following variables: financial, technology, human resources, political and regulatory, infrastructure, entrepreneurial, market relations and product quality factors on the competitiveness of micro-enterprises in Northern Mindanao. This null hypothesis was rejected because the $p = .000 < 0.05$. Thus, there is a relationship between each of the following variables: financial, technology, human resources, political and regulatory, infrastructure,

entrepreneurial, market relations and product quality factors on the competitiveness of micro-enterprises in Northern Mindanao.

Influence of Financial, Technology, Human Resources, Political and Regulatory, Infrastructure, Entrepreneurial, Market Relations and Product Quality Factors on the Competitiveness of Micro-enterprises

A stepwise multiple regression approach was utilized to examine how independent variables—including Technology Factors, Technology Factors, Human Resources Factors, Political and Regulatory Factors, Infrastructure Factors, Entrepreneurial Factors, Market Relations Factors, Product Quality Factors—explain and predict variations in Enterprise Competitiveness. This analysis aimed to identify key determinants of competitive performance among micro-enterprises operating in the Northern Mindanao Region of the Philippines.

Table 7. Regression Coefficients

Variables in the Model	Unstandardized Coefficient		Standardized Coefficient	t	Sig.*	VIF	R ²
	B	Std Error	Beta				
(Constant)	.635	.085		7.474	.000		
Market Relations Factors	.195	.040	.240	4.905	.000	3.410	0.627
Entrepreneurial Factors	.167	.038	.211	4.396	.000	3.276	
Product Quality Factors	.213	.036	.269	5.865	.000	2.997	
Human Resources Factors	.149	.030	.174	4.953	.000	1.764	
Infrastructure Factors	.074	.024	.091	3.042	.002	1.264	
R=0.820	R ² =0.672	Adjusted R ² =0.669	DW=1.888	F=191.855	Sig.=0.000		

* at 0.05 level of significance

The regression coefficients reveal that market relations factors ($\beta=0.195$, $t=4.905$, $p\text{-value}=0.000$), entrepreneurial factors ($\beta=0.167$, $t=4.396$, $p\text{-value}=0.000$), product quality factors ($\beta=0.213$, $t=5.865$, $p\text{-value}=0.000$), human resources factors ($\beta=0.149$, $t=4.953$, $p\text{-value}=0.000$), and infrastructure factors ($\beta=0.074$, $t=3.042$, $p\text{-value}=0.002$), positively and significantly influence enterprise competitiveness.

The study strongly supports the Resource-Based View (RBV) theory by highlighting how unique internal resources, such as skilled human capital and entrepreneurial capabilities—including technical know-how, networks, and innovation—are essential for sustainable competitive advantage in micro-enterprises (Wernerfelt, 1984). It also aligns with Network Theory and Social Capital Theory, emphasizing the critical role of external relational resources like market relations, trust, and collaboration in fostering resilience and growth (Woolcock, 1998). Moreover, findings affirm Porter's Five Forces theory, showing that high product quality establishes market differentiation, reduces the threat of substitutes, and enhances

bargaining power with buyers (Porter).

4. Conclusion

The study concludes that micro-enterprises in Northern Mindanao are operated by business owners, with the majority being sole proprietorships functioning with a small team of 1 to 2 employees, and most having been in operation for 3 to 5 years. These micro-enterprises generally have satisfactory access to financial resources, technology, political and regulatory information, infrastructure, and market relations and product quality. Respondents

exhibit good entrepreneurial competence and strong skills, suggesting that owners and managers are likely engaging in behaviors that foster continuous innovation, strategic flexibility, and resource optimization. The micro-enterprises demonstrate a moderate level of competitiveness, characterized by an increased customer base, strong customer satisfaction, distinctive offerings, strategic pricing, and successful market expansion that foster loyalty, repeat business, and positive word-of-mouth. There is a significant relationship among variables such as financial, technology, human resources, political and regulatory, infrastructure, entrepreneurial, market relations, and product quality factors on the competitiveness of micro-enterprises in Northern Mindanao. Furthermore, multiple linear regression analysis reveals that product quality, market relations, entrepreneurial competence, human resources skills, and infrastructure factors are significant predictors of enterprise competitiveness, meaningfully influencing how micro-enterprises perform and sustain their competitive advantage in Northern Mindanao.

5. Recommendation

The study recommends that micro-enterprises in Northern Mindanao enhance product quality through certifications, participate in government training and mentorship programs like KMME, and engage in local trade events to expand networks and markets. Government agencies should provide technical support, organize market linkage activities, expand mentorship programs, improve vocational training, and invest in infrastructure. Financial institutions are encouraged to offer accessible, flexible microfinance tailored to micro-enterprises' needs. Other stakeholders, including customers, cooperatives, business support organizations, and academia, should support micro-enterprises through purchases, feedback, technical assistance, and applied research. Future research should focus on region-specific environmental and cultural factors, include larger enterprises to better assess human resource impacts, collaborate with local bodies for relevance, and conduct longitudinal studies to evaluate intervention outcomes for sustained competitiveness and growth

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