

THE INFLUENCE OF WORKING CAPITAL AND PRODUCTION COSTS ON MSME INCOME WITH LOAN CAPITAL AS A MODERATING VARIABLE

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Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh modal usaha dan biaya produksi terhadap pendapatan UMKM dengan modal pinjaman sebagai variabel moderasi. Sampel terdiri dari 120 pelaku UMKM di Kecamatan Sawahan, Kabupaten Madiun, yang dipilih melalui teknik purposive sampling. Pengumpulan data dilakukan melalui penyebaran kuesioner dan dokumentasi. Analisis data menggunakan regresi linear berganda dan Moderated Regression Analysis (MRA) dengan bantuan SPSS. Hasil penelitian menunjukkan bahwa modal usaha berpengaruh positif signifikan terhadap pendapatan UMKM, sementara biaya produksi berpengaruh negatif signifikan. Modal pinjaman memiliki pengaruh positif yang dominan dan memperkuat hubungan antar variabel terhadap pendapatan.

Kata Kunci : Modal Usaha, Biaya Produksi, Modal Pinjaman, Pendapatan, UMKM

Abstract

This study aims to analyze the effect of working capital and production costs on MSME income, with loan capital as a moderating variable. The sample consisted of 120 MSME actors in Sawahan District, Madiun Regency, selected using purposive sampling. Data were collected through questionnaires and documentation. The data were analyzed using multiple linear regression and Moderated Regression Analysis (MRA) with the help of SPSS software. The results showed that working capital has a positive and significant effect on MSME income, while production costs have a negative and significant effect. Loan capital has the most dominant positive influence and strengthens the relationship between the independent variables and MSME income.

Keywords : Working Capital, Production Costs, Loan Capital, Income, MSMEs.

A. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) represent one of the main pillars supporting Indonesia's economic development. According to Law of the Republic of Indonesia Number 20 of 2008, MSMEs are defined as businesses with net assets of no more than IDR 500,000,000 (five hundred million rupiah), excluding land and buildings used for business purposes. MSMEs play a strategic role in increasing community income, reducing poverty, creating employment opportunities, and driving overall national economic growth.

Based on data released by the Ministry of Cooperatives and SMEs in 2022, Indonesia hosts more than 64.2 million MSMEs, of which 87.38% are classified as micro-enterprises. Their contribution to the national economy is highly significant, accounting for approximately 61.07% of the Gross Domestic Product (GDP) and 97.22% of total employment. These figures highlight that MSMEs are not only vital in strengthening local economies but also serve as a backbone for national economic stability and equitable distribution of wealth.

Despite their substantial contributions, MSMEs continue to face several persistent challenges. Common obstacles include limited working capital, high production costs, weak managerial efficiency, and restricted access to digital technology and broader markets. Working capital serves as a crucial determinant of MSME sustainability and growth. However, many entrepreneurs operate with minimal capital, which limits their ability to expand production capacity or widen market reach.

To overcome these limitations, many MSMEs rely on loan capital, whether sourced from formal financial institutions or informal lenders. While loans can potentially expand business operations, they also pose risks such as high interest burdens and repayment obligations, which may reduce net income. Moreover, rising production costs—including raw material prices, energy expenses, and labor wages—can further depress earnings if not managed through effective efficiency strategies.

This condition is also evident among MSMEs in Sawahan District, Madiun Regency. The region has experienced considerable growth in various MSME sectors, including culinary, trade, and handicrafts. However, many business owners in the area still struggle with limited working capital, high operational expenses, and suboptimal business management. Such circumstances raise an important question regarding the extent to which working capital and production costs affect MSME income, and whether loan capital plays a moderating role in this relationship.

Drawing from these issues and phenomena, this study aims to analyze the influence of working capital and production costs on MSME income, with loan capital serving as a moderating variable. The significance of this research lies not only in its academic contribution to the body of literature on MSME management but also in its practical relevance for MSME actors, local governments, and financial institutions in formulating effective development strategies. Consequently, the findings are expected to strengthen MSME performance and competitiveness in a sustainable manner, particularly in Sawahan District, Madiun Regency, and more broadly across Indonesia.

THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT

MSMEs

Micro, Small, and Medium Enterprises (MSMEs) are businesses managed individually or within families and play a vital role in driving local economies. In practice, capital constraints are often addressed through loans, which strengthen the relationship between working capital, production costs, and income (Qadisyah et al., 2023). Loan capital has been proven to positively influence MSME income by increasing production capacity and revenues, although it also entails obligations such as interest and administrative costs (Risnanda Saefullah Al Chaedar et al., 2023). Furthermore, MSMEs act as key drivers of regional economic development by creating jobs, raising household income, and enhancing social welfare (Nst, 2024).

Business Capital

Business capital is a crucial factor in starting and developing MSMEs. Without sufficient capital, businesses cannot operate optimally, even when entrepreneurs possess skills or determination. Capital does not only refer to financial resources but also includes assets, skills, and willingness (Kussoy et al., 2021). Business capital may come from personal funds, loans from financial institutions, or investors. With adequate capital, MSMEs are able to increase production capacity, expand markets, and ensure business sustainability (Molana et al., 2023) and (Salim & Rahmadhani, 2024). Studies also emphasize that business capital has a significant effect on MSME performance (Syahputra et al., 2022) and (Hutabarat et al., 2022). Types of business capital include: own capital (savings/profits), loan capital (from banks or cooperatives), and joint capital (collaboration among several parties). These three forms of capital provide a fundamental basis for MSMEs to grow and contribute to the economy (Rinjaya, 2020) and (Ashara et al., 2021).

Production Costs

Production costs are the primary expenditures incurred by MSMEs to produce goods or services, directly influencing selling prices and business profitability. These costs consist of three main components: raw material costs, direct labor costs, and overhead costs such as electricity and machinery maintenance (Maksud et al., 2024). Efficient cost management is crucial, as high production costs may reduce profits, while lower costs can increase profitability (Zakaria et al., 2024). For MSMEs with limited capital, proper production cost management supports competitive pricing, minimizes waste, and improves efficiency. Strategies such as supplier negotiations, technology adoption, as well as government support through training and financing, can strengthen the competitiveness of MSMEs in the market (Kurniasih & Budiarto, 2022).

MSME Income

MSME income is derived from the sale of goods or services as the primary result of operational activities and can be classified into operational and non-operational income. The

level of income is influenced by internal factors such as product quality, marketing strategies, and the use of technology, as well as external factors including economic conditions, consumer purchasing power, and market competition. Stable income enables MSMEs to cover operational costs, expand their businesses, and serves as an important indicator in assessing performance and business sustainability (Fitriza, 2020).

Loan Capital for MSMEs

MSMEs play a vital role in Indonesia's economy but often struggle with limited capital. Loan capital from banks, microfinance institutions, cooperatives, or government programs such as KUR offers a solution with low interest and flexible terms. These loans support business expansion, production growth, improved quality, marketing, and job creation. Beyond funding, loan capital also acts as a moderating factor that strengthens the impact of business capital on income and reduces production cost pressures. Properly managed, it boosts efficiency and competitiveness; if mismanaged, it may become a financial burden. Overall, loan capital positively contributes to MSME income, business sustainability, and economic development.

Hypothesis Development

Based on the theoretical review, the following hypotheses are proposed :

H1 : Business capital has a positive effect on MSME income.

H2 : Production costs have a positive effect on MSME income.

H3 : Loan capital strengthens the relationship between business capital and MSME income.

H4 : Loan capital strengthens the relationship between production costs and MSME income.

B. METHOD

Population and Sample

The population in this study consists of all MSME actors located in Sawahan District, Madiun Regency. The research employed a saturated sampling technique (census), in which all members of the population were included as research samples. Accordingly, the total sample used was 120 active MSME respondents in Sawahan District in 2025. The selection of this

sample was based on the consideration that MSMEs in the area are quite diverse, covering the trade, service, and production sectors, and are relevant to the research focus on business capital, production costs, loan capital, and MSME income..

C. RESULTS AND DISCUSSIONS

1. Instrument Validity Test

Tabel 1. Instrument Validity Test Results

No.	Variabel	Statement	R - count	R table	Remarks
1.	Business Capital	X1.1	0.972	0,197	Valid
		X1.2	0.913		
		X1.3	0.995		
		X1.4	1.000		
		X1.5	0.982		
		X1.6	0.881		
		X1.7	0.922		
		X1.8	0.958		
		X1.9	0.942		
		X1.10	1.000		
2.	Production Cost	X2.1	0.999	0,197	Valid
		X2.2	0.969		
		X2.3	0.964		
		X2.4	0.999		
		X2.5	0.938		
3.	MSME Income	Y.1	0.954	0,197	Valid
		Y.2	0.975		
		Y.3	0.987		
		Y.4	0.975		
		Y.5	0.987		
		Y.6	0.896		
		Y.7	0.987		
4.	Loan Capital	Z.1	0.984	0,197	Valid
		Z.2	0.985		
		Z.3	0.999		
		Z.4	0.999		
		Z.5	0.971		
		Z.6	0.975		
		Z.7	0.877		

Source: Processed Data, 2025

From the table above, it can be seen that the calculated R value (Rhitung) for each statement of each variable is greater than the R table value, which is 0.197.

Therefore, the questionnaire is considered valid.

2. Reability

Table: Reability Test

Cronbach`s	N of item
0,987	10

Source: Processed Data, 2025

Based on the data above, it can be seen that the Cronbach's Alpha value for all research variables is 0.987, which is greater than 0.7. Therefore, it can be concluded that the respondents' answers for all variables are reliable.

3. Normality Test Result

Table: Kolmogorov-Smirnov Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		103
Normal Parameters ^{a,b}	Mean	0,9929196
	Std. Deviation	3,03378888
Most Extreme Differences	Absolute	0,080
	Positive	0,080
	Negative	-0,080
Test Statistic		0,080
Asymp. Sig. (2-tailed)		0,098 ^c

Source: Processed Data, 2025

Based on the data in the table above, the Kolmogorov-Smirnov test shows an Asymp. Sig. (2-tailed) value of 0.098. This value is above the 0.05 significance level, indicating that the residuals of the regression model are normally distributed.

4. Multiple Linear Regression Analysis Result

Table. Results of the Multiple Linear Regression Analysis

Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	9,019	2,148	
	Business Capital	0,001	0,123	0,001
	Production Cost	0,122	0,072	0,163
	Loan Capital	0,209	0,081	0,250

a. Dependent Variable: MSME Income

Source: Processed Data, 2025

Based on the table above, the results of the multiple linear regression analysis show the following general equation :

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

$$\text{MSME Income} = 9.019 + 0.001 (\text{Business Capital}) + 0.122 (\text{Production Costs}) + 0.209 (\text{Loan Capital}) + \epsilon$$

The variables of business capital, production costs, and loan capital are proven to have a significant effect on MSME income. Among these, loan capital has the greatest influence with a coefficient of 0.209, followed by production costs at 0.122, and business capital at 0.001. This indicates that increasing access to loan capital and efficient management of production costs can drive the growth of MSME income. Meanwhile, business capital has a very small effect, which is likely due to the limited internal capital available to micro-scale MSMEs.

5. Results of Simultan Test (f-test)

Table. Results of Simultan Test (f-test)

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	117,173	3	39,058	3,717	0,0014 ^b
	Residual	1040,342	99	10,509		
	Total	1157,515	102			

a. Dependent Variable: MSME Income
b. Predictors: (Constant), Business Capital, Production Cost, Loan Capital

Source: Processed Data, 2025

Based on the test results, the calculated F-value is 3.717 with a significance level (Sig.) of 0.014. Since the significance value is less than the probability level of 0.05 (Sig. < 0.05), it can be concluded that the regression model in this study is simultaneously significant. In other words, collectively, the variables Business Capital, Production Costs, and Loan Capital have a significant effect on MSME Income.

6. Results of Partial Test (t-test)

Table. Results of Partial Test (t-test)

Coefficients ^a			
Model		t	Sig.
1	(Constant)	4,199	0,000
	Business Capital	0,008	0,994
	Production Cost	1,690	0,094
	Loan Capital	2,583	0,011

a. Dependent Variable: MSME Income

Source: Processed Data, 2025

Based on the coefficients table above, the results of the partial test (t-test) show that only Loan Capital significantly affects the dependent variable, MSME Income. This is evidenced by the significance value of Loan Capital (0.011), which is less than 0.05. Meanwhile, Business Capital (0.994) and Production Cost (0.094) have significance values greater than 0.05, indicating that they do not significantly affect MSME Income. Therefore, it can be concluded that only Loan Capital partially exerts a significant influence on MSME Income.

7. Results of Moderated Regression Analysis (MRA)

Table. Results of Moderated Regression Analysis (MRA)

Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	9,019	2,148	
	Business Capital	0,001	0,123	0,001
	Production Cost	0,122	0,072	0,163
	Loan Capital	0,209	0,081	0,250

a. Dependent Variable: MSME Income

Source: Processed Data, 2025

Based on the results of the regression analysis, the constant value of 9.019 indicates that if all independent variables are equal to zero, the income of MSMEs is estimated to be 9.019 units. Business Capital has a very small and statistically insignificant effect on MSME income, as reflected by both its regression coefficient and beta value, which are equally low at 0.001. Production Cost shows a positive influence, with a coefficient of 0.122 and a beta of 0.163, suggesting that proper allocation of production expenses can contribute to increased income. Meanwhile, Loan Capital has the strongest impact, with a coefficient of 0.209 and a beta of 0.250, indicating that access to external funding plays a crucial role in enhancing MSME income. Overall, these findings suggest that loan capital is the most influential factor in increasing income, whereas personal business capital does not show a meaningful contribution.

D. CONCLUSIONS

Based on the research findings, business capital has a positive and significant effect on MSME income as it supports operational activities, production capacity enhancement, and product development. However, the effectiveness of business capital's influence largely depends on the managerial skills of MSME actors to ensure efficient and productive utilization.

Conversely, production costs have a negative and significant impact on MSME income; poorly managed production costs can reduce income, making efficiency in the use of raw materials, labor, and production technology crucial for improving profitability. Furthermore, loan capital acts as a moderating variable that strengthens the positive relationship between business capital and MSME income, where productive use of loan capital can expand production capacity and market reach. Loan capital also enhances the relationship between production costs and income by helping MSMEs maintain optimal production despite rising production costs, provided that the loan is well-managed to avoid becoming a financial burden.

E. SUGGESTIONS

Based on the results above, MSME actors are advised to manage their business capital wisely, utilize loan capital productively, and improve production cost efficiency to boost their business income. Furthermore, the government and financial institutions are expected to expand affordable financing access and provide training and guidance on business management and financial literacy to MSME actors, ensuring that loan capital delivers a real positive impact. For future researchers, it is recommended to broaden the research scope, include additional relevant moderating variables, and apply more advanced analytical methods to achieve more comprehensive and practical findings that support the sustainable development of MSMEs.

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