

Determinants of Micro, Small, and Medium Enterprises: The Case of an Emerging Economy in Indonesia

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Abstrak - The covid-19 pandemic has worsened Indonesia's economic situation. Most households have tried to survive by running their own business because they have just been fired from their latest company. Unfortunately, this business cycle forced families to reduce production costs due to less aggregate product demand. Many of them collapsed, and fewer survived. The condition of natural selection is to make government create a proper policy to prevent bad things happen in the future since MSME is categorized as an informal sector with many forms, such as culinary, services, and education. Most empirical studies show that the informal sector contributes more than 60% to Indonesia economic outcome. The aggregate demand for MSME products is only consumed by 20% of below-income group households. This study aims to analyse the effect of input factor on MSME productivity, proving that labour and capital investment is determinants for the extreme resilience of MSME in Indonesia. It used secondary data from 2016 to 2020 about the MSME sector in Indonesia and the Ministry of Cooperation using a proxy of MSME productivity and the MSME export ratio of total exports of all economic sectors. This research was then analyzed using the Linear Regression with Ordinary Least squares with STATA 14. The results showed that the labour and capital investment in the MSME sector had a positive and significant effect on the productivity and export ratio of MSMEs. T-statistics and F-statistics indicate both are higher than T and F table ($p\text{-value} < 0,05$). The regression model also does not suffer from classical assumption tests such as heteroskedasticity, multicollinearity, and autocorrelation.

Abstract

Pandemi Covid-19 telah memperburuk situasi ekonomi Indonesia. Akhir-akhir ini, sebagian besar rumah tangga mencoba bertahan dengan menjalankan bisnis sendiri karena mereka dipecat dari perusahaan terbaru mereka. Siklus bisnis ini memaksa keluarga untuk mengurangi biaya produksi mereka karena permintaan agregat yang lebih sedikit untuk produk mereka. Banyak dari bisnis mereka banyak yang bangkrut, dan hanya sedikit yang selamat. Kondisi seleksi alam membuat pemerintah membuat kebijakan yang tepat untuk mencegah hal-hal buruk terjadi di masa depan karena UMKM dikategorikan sebagai sektor informal dengan berbagai bentuk, seperti kuliner, jasa, dan pendidikan. Sebagian besar studi empiris menunjukkan bahwa sektor informal berkontribusi lebih dari 60% terhadap hasil ekonomi kita. Sayangnya, permintaan agregat untuk produk UMKM hanya dikonsumsi oleh 20% rumah tangga kelompok berpenghasilan rendah. Penelitian ini bertujuan untuk menganalisis pengaruh investasi kerja dan modal pada sektor Usaha Mikro dan Kecil Menengah (UMKM) terhadap produktivitas UMKM di Indonesia. Penelitian ini menggunakan data sekunder tahun 2016 hingga 2020 mengenai sektor UMKM di Indonesia dan Kementerian Koperasi dengan menggunakan proksi produktivitas UMKM dan rasio ekspor UMKM terhadap total ekspor seluruh sektor ekonomi. Metode penelitian ini menggunakan Regresi Linier dengan Ordinary Least Square dengan STATA 14. Hasil penelitian menunjukkan bahwa investasi tenaga kerja dan modal pada sektor UMKM berpengaruh positif dan signifikan terhadap produktivitas dan rasio ekspor UMKM. Keduanya ditunjukkan oleh t-statistik dan F-statistik yang lebih tinggi dari T dan F tabel ($p\text{-value} < 0,05$). Model regresi juga tidak mengalami uji asumsi klasik seperti heteroskedastisitas, multikolinearitas, dan autokorelasi.

Kata Kunci: Investasi; Tenaga Kerja; Usaha Menengah dan Kecil (UMKM); OLS; Produktivitas

INTRODUCTION

The pandemic condition worsened the condition of the formal sector and the informal sector. The informal sector, almost 90% without legal permission and business surviving skill, tend to go bankrupt or go out of business (Harahap et al., 2020). The government, business actors, academics, and the community must work together to strengthen the sustainability of the Indonesian economy, especially in the informal sector (MSME), whose contribution to the economy is more than 50 percent (Islami et al., 2021). In addition, the MSME sector has also contributed greatly to employment, which is 79%. In 2016, for example, MSME recorded the largest number of workers, 123.23 million people. Meanwhile, from 2017 to 2020, the number consistently increases by 5% annually. However, it is necessary to note that MSMEs should also consider the quality of the workers. Previous research proves that MSMEs with high-quality labour and better capital investment has strong and extreme resilience to face recession and uncertain conditions in the future (Sahoo & Ashwani, 2020).

The productivity of the MSME sector has increased from 2016 to 2020 by an average of 50%. The most significant increase occurred from 2016 to 2017, about 55%. This data indicated that while the economic condition has gotten worse, households and MSME firms can still keep up with MSME aggregate demand and aggregate supply. Additionally, it can be assumed that the workforce of the MSME sector has a positive trend to improve the performance of the MSME sector in Indonesia. Capital investment also has a major role in creating more output in MSME production. While many investors are struggling because of the recession threat, the government can distribute aid for funding household-based MSMEs. Another fact is MSME product has only been consumed by 20% of people in the top 10% group income in Indonesia or rich people. This research tries to enlighten government and business stakeholders to create high demand for MSME products to reach the top 10% of group income in Indonesia. To date, rich people in Indonesia do not have a reason to buy products in the MSME sector because they have the option to buy goods and services from overseas or imported goods.

Therefore, this research aims to prove that MSME has strong resilience as the result of labor and capital investment. In addition, it determines the effect of labor and capital investment on the export share of SMEs to total exports.

LITERATURE REVIEW

The informal sector has been one of the most affected since the COVID-19 pandemic hit Indonesia in early 2020. The pandemic worsened the condition of labour participation in Indonesia. The informal sector, which is almost 90% without legal permission and settled business resistance, tends to go bankrupt or go out of business (Harahap et al., 2020). The government, business actors, academics, and the community must work together to strengthen the sustainability of the Indonesian economy, especially in the informal sector, whose contribution to the economy is more than 50 percent (Islami et al., 2021).

In addition, the MSME sector contributes greatly to employment, which is 79% (Sahoo & Ashwani, 2020). In 2016, for example, the number of MSME workers was 123.23 million. Meanwhile, from 2017 to 2020, there was an increase in the number of workers in the MSME sector by 5%. Also, the productivity of the MSME sector has increased from 2016 to 2020 by an average of 50%. The most significant increase occurred from 2016 to 2017, which was 55%. Based on these data, it can be assumed that the MSME sector workforce that has a positive trend contributes to improving the performance of the MSME sector in Indonesia. This research aims to determine the effect of labor and capital investment on MSME Productivity.

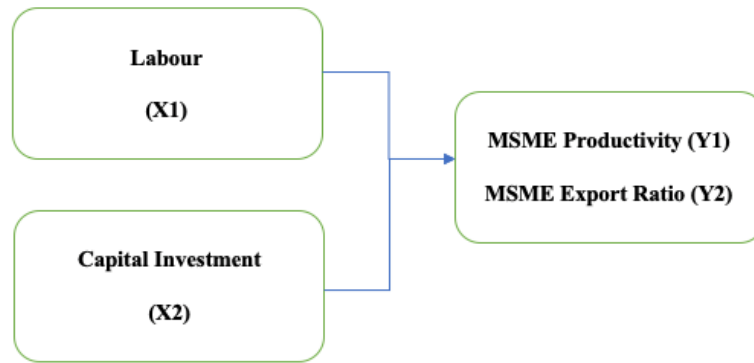


Figure 1. Conceptual Framework

METHODOLOGY

This research was conducted using a quantitative approach. The data were gathered from secondary sources. The data form was a mixed-time series and cross-section that was also known as panel data from 2016 to 2020. The research used more than 50-time series methods with the scope of research on macroeconomic data in aggregate. This study's data was sourced from related institutions and agencies such as the Directorate General of Fiscal Balance, the Ministry of Finance, and the Central Bureau of Indonesia Statistics (CBIS). They were obtained through library research methods in the form of literature studies, scientific writings, and articles related to the topic of the productivity of the MSME sector and the regional economy.

Production Function

Production is the combination of two or more inputs into outputs. According to Todaro (2006), production is the end result of the process of economic activity by utilizing several inputs. The analysis of how input factors affect output production is explained in the production function. The production function that is generally used is *Cobb-Douglas*. According to Todaro, (2006), the *Cobb-Douglass* function is an equation that illustrates the effect of the input used to produce output with a certain quantity to represent the relationship between input and output. This mathematical expression can be explained as follow:

$$Q = A L^{\alpha} K^{\beta} \quad (1)$$

Whereas:

Q = Output Production

L = Labour

K = Capital

The value of α and β in the above equation shows the sensitive degree in input factors (L and K). Thus, the sum of the elasticity of the input factors can illustrate the level of marginal product with the following condition:

1. If $\alpha + \beta = 1$, there is a constant marginal product on the scale of production (*Constant return to scale*)
2. If $\alpha + \beta > 1$, there is a marginal product that increases the production scale (*Increasing return to scale*).
3. If $\alpha + \beta < 1$, there is a marginal product that decreases the production scale (*Decreasing return to scale*).

Informal Sector Labour

The informal sector as a type of work refers to the 2002 Indonesian Occupational Classification (IOC), which is guided by the 1988 International Standard Classification of Occupations (ISCO). The workforce can be defined as the entire population who has entered working age (15-64 years). More specifically, it is an individual who has economic activities with the intention of obtaining or helping to earn income or profits, at least 1 hour (uninterrupted) in the past week Gade (2022). According to Simba (2019), the classification of various types of workers in the MSME sector is as follows:

Free Workers in the MSME sector

A free worker is a person who is working for an employer in the form of an individual or group (institution) temporarily (more than one employer in the last month) in the MSME sector. They can work in formal and informal businesses based on remuneration by receiving rewards in the form of money or goods, and either with the system payments per day, weekly or even monthly. Micro, small, and medium enterprises in question include: culinary, tourism, non-food goods, and service

Family Worker / Volunteer (Unpaid)

This type of worker is often associated with a person who works to help and lighten the workload of others in the MSME sector without receiving compensation in the form of money or goods. The unpaid workers consist of: (1) Household members, such as wives/children who help their husbands/fathers work in MSMEs and are not paid, (2) Workers who are not household members but still in a large family environment that helps and is not paid. (3) workers are not from household members and not from the family of the person being helped, but living in the home environment of the family being helped. Example: Neighbours who volunteer to help weave bamboo in a bamboo farmer's family are not paid.

Table 1. Operational Variables

No	Variables	Measurement	Unit	Source
1.	MSME's Productivity	Total MSME labour income per capita	Rupiah	Ministry of Cooperation and MSME Republic of Indonesia
2.	MSME's labour	Number of men and women working in the MSME sector	Person	Ministry of Cooperation and MSME Republic of Indonesia
3.	MSME's capital investment	Total investment/investment in the MSME sector by the private sector	Rupiah	Ministry of Cooperation and MSME Republic of Indonesia
4.	MSME's Export Ratio	MSME Export Ratio to Total Export in Real Sector	Percentage	Ministry of Cooperation and MSME Republic of Indonesia

Source: Data has been processed (2022)

Research Model Framework

The research model below refers to several studies (Dias et al., 2016; Haryanto et al., 2013; Isbah & Iyan, 2016; Saarc et al., 2011; Widianingsih et al., 2015). [Click or tap here to enter text.](#) The model that was applied in this study was the equation of the function Cobb-Douglass production. According to Hu & Mcaleer (2005), the Cobb-Douglas function is a mathematical function that includes several types of variables, namely the dependent variable and the independent variable. This model relates changes in input to output. The specifications of the econometric model in this study are described as the followings:

First Model:

$$\text{Prod_UMKM}_t = \beta_0 + \beta_1 \text{TK}_t + \beta_2 \text{INV}_t + u_t \quad (2.)$$

Second Model:

$$\text{Rat_UMKM}_t = \beta_0 + \beta_1 \text{TK}_t + \beta_2 \text{INV}_t + u_t \quad (3.)$$

Variable Description:

β_0	=	Constanta / Intercept
$\beta_{(1,2,3,n)}$	=	Parameter or Coefficient of Independent Variable

Prod_UMKM	=	Productivity of Micro Small and Medium Enterprises in Indonesia
Rat_UMKM	=	Share of MSME exports to total exports
TK	=	MSME Sector Manpower
INV	=	Private Capital Investment in the MSME sector

To examine the relationship between production input to MSME productivity, this study employed two models. These models serve to elaborate and provide a general picture of MSME common patterns in Indonesia. The first model determines the impact of labour and capital investment on MSME productivity, while the second model has the same independent variable but determines its impact on the MSME export ratio.

RESULTS AND DISCUSSION

This section goes into detail about the results of the model estimation. Using the STATA 14.1 software, the results are illustrated as follows:

Table 2. Estimated Regression Results

Variable	1 st Equation			2 nd Equation		
	Prod_MSME as the dependent variable			Rat_MSME as the dependent variable		
	Coefficient	t-statistic	Prob.	Coefficient	t-statistic	Prob.
C	-134.76	3.85	0.06	-4.7617	-0.51	0.65
TK	9.303	3.92	0.04	1.3123	2.08	0.173
INV	96.3789	5.77	0.02	0.6589	0.15	0.895
R-Squared	0.967			0.6913		
F-statistic	31.75			2.24		
Prob (F-statistic)	0.03			0.307		

Sources: Data has been processed

The Effect of Labor and Capital Investment on the Productivity of the MSME Sector

Based on the estimation results of the first model above, the labor and capital investment in the MSME sector had a significance value below 5%, which indicates a significant influence on the productivity variables of MSMEs in Indonesia. It means if MSME labour and capital investment have a 1% level increase, MSME productivity will rise 9.303 % or 96.378 IDR. The R-Squared value was 0.96, which means that the independent variable in this study can explain 96% of the variation in the dependent variable change. Meanwhile, the remaining coefficient of 0.04 or 4 % is another variable outside the model that can explain changes in the dependent variable. This finding is in line with research conducted by Islami (2021) and Prasetyo (2020). Their research focuses on the effect of productivity and performance of the MSME sector in Indonesia. The finding is also relevant to the *Cobb-Douglass* Theory that states better quality of labour addition to production can increase the marginal product of labour or labour productivity (%Change of Output > % Change of labour input). According to Islami et al., (2021), MSMEs can have strong resilience if they have well-educated labour.

Effect of Labor and Capital Investment on MSME export share

Based on the estimation results of the second model above, it can be seen that the labor and capital investment of the MSME sector has a significant value above 5%. It indicates an insignificant influence on the MSME export share variable in Indonesia. It means if MSME labour and capital investment have a 1% level increase, the MSME export ratio will rise by 1.303 % and 0.65 %. The R-Squared value was 0.69, which means that the independent variable in this study can explain 69% of the variation in the dependent variable change. Meanwhile, the remaining coefficient of 0.31 or 31% is another variable outside the model that can explain changes in the dependent variable. These results confirm earlier research findings (Salim et al., 2021; Triharjanto et al., 2022; Wibowo et al., 2021; Wijayanti, 2020) regarding the development of the export ratio of the MSME sector in Indonesia. This finding is also relevant to another *Cobb-Douglass* Theory that states more capital investment in MSME production can increase the marginal product of capital or capital productivity (%Change of Output > % Change of capital input).

According to Wibowo et al., (2021), MSMEs can expand their potential income by adding more capital investment to conquer the market.

Normality Test

Figure 2 below is a regression model that has been interpreted to have a data distribution that is relevant to statistical rules, which is normally distributed. In this study, the normality test used a scatterplot.

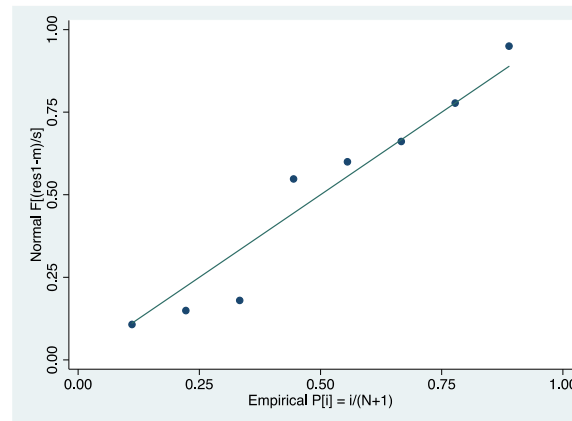


Figure 2. Normality test using *Scatterplot*
Source: Data Processed using STATA 14.1

Figure 2 above shows that the data in the regression model has a linear trend along the transverse line. This indicates that the data is normally and symmetrically distributed.

Multicollinearity Test

Table 3 below is the interpretation of the multicollinearity test on the regression model that has been carried out. This test aims to determine whether there is a linear relationship between the independent variables, namely labour in the agricultural sector and local government spending on agricultural affairs.

Table 3. Multicollinearity test using *Variance Inflation Factor*

Variable	VIF
TK	1.63
INV	1.63

Source: Data Processed using STATA 14.1

This study used the multicollinearity test using the VIF method. The study reported that the two independent variables were independent of the heteroscedasticity problem because the VIF value was < 5 . Thus, it can be concluded that there is no relationship between the independent variables, namely labour and local government spending. Table three below illustrates the heteroscedasticity test in the regression model. The heteroscedasticity test aims to determine whether the existing variance is consistent or not.

Heteroskedasticity Test

Table 4. Heteroscedasticity Test using *Glejser*

Variable	<i>p-value</i>
Labour	0.169
Capital Investment	0.128

Source: Data Processed using STATA 14.1

Table 4 describes the results of the heteroscedasticity test. It can be seen that the *p-value* of the independent variable is > 0.05 , which indicates that there is no heteroscedasticity. In other words, the regression of this study is homoscedastic, i.e., there is no inconsistency of variance from various residuals.

Autocorrelation Test

Table 5. Estimated Autocorrelation Results

Variable	<i>P-value</i>
TK	0.12
INV	0.12

Source: Data Processed using STATA 14.1

Table 5 indicates the results of the run test for the autocorrelation test. The results have a p-value above 0.05, which is equal to 1. Therefore, it can be concluded that the regression model does not have a correlation between error terms or residuals between periods t and period $t-1$ (previous).

T-tests

Table 6. Estimated T-Tests Results

Variable	Equation 1		Equation 2	
	t-statistic	Prob.	t-statistic	Prob.
TK	3.92	0.04	2.08	0.173
INV	5.77	0.02	0.15	0.895

Source: Data Processed using STATA 14.1

Based on Table 6, equation 1 shows that the labour and capital investment variables have t-statistic values of 3.92 and 5.77, respectively. These values are greater than the T-table of 2.38. Meanwhile, in equation 2, the value of t-statistics is smaller than the t-table, which is 2.08 and 0.15, respectively, smaller than 2.38. Thus, it can be concluded that:

- 1.) H_0 has been rejected, and H_1 is accepted (3.92 and $5.77 > 2.38$)
- 2.) H_0 has been accepted, and H_2 is rejected (2.08 and $0.15 < 2.38$)

Coefficient of Determinant (R^2)

Table 7. Estimated R-Squared Results

Variable	R-Squared
TK	0.96
INV	0.69

Source: Data Processed using STATA 14.1

Table 7 provides information about the results of the regression model data processing. The table indicates that the coefficient of determination in the two regression equations above is worth 0.96 and 0.69, which means that 96% and 69% of variations in productivity changes in micro, small, and medium enterprises are influenced by labour and capital investment variables. Meanwhile, the remaining 4% and 31% mean that the productivity variable of micro, small, and medium enterprises is explained by other independent variables outside the model studied.

CONCLUSION

The present research discusses the influence of labour and capital investment in the MSME sector on the productivity of the MSME sector in Indonesia during 2016 – 2020. The results are illustrated as follows. In equations 1 and 2, labour and capital investment had a positive and significant impact on the productivity of MSMEs in Indonesia. The proxies used on the productivity of the MSME sector in Indonesia were MSME productivity and the ratio of MSME exports to exports of all economic business sectors. Optimal labour growth is considered effective for increasing agricultural productivity. Following that, the capital investment variable in the second to third equations had a positive and significant effect on Indonesia's productivity in the MSME sector. If capital investment increases, the MSME sector in Indonesia will also develop. Based on these findings, this study provides several recommendations for the development of the MSME sector in Indonesia. First, this study suggests the government launch a good and correct planning or policy in the MSME / informal sector as well as increasing access to capital in the credit sector for the advancement of the MSME sector. In this way, the

community can contribute optimally and increase output/income in the MSME sector. In addition, academics, communities, and business actors can work together to actualize government policies in the short, medium, and long term. Although the key finding looks promising, the study still has a few weaknesses. First, (1) the research object was concentrated on Java Island. It biased the research outcome to be used for MSME research outside the island. Second, (2) many variables were not included in this research because the researcher used the *cobb-dougllass* model. Hence, the outcome was less vulnerable if compared to other MSME research. Finally, (3) media and the rest of the world can promote MSME's products to boost MSME's seller income and improve Indonesia's economy.

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