

Optimization Of MSME Sector for Accelerating Regional Development: An Empirical Case Study of Jabodetabek Agglomeration Area

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Abstract - This study elaborating the optimization of MSMEs as a key driver of regional development in the Jabodetabek Agglomeration Area, emphasizing their vital role in shaping local economy performance. Using a quantitative approach that integrates collecting secondary data and processing with STATA Software, this research highlights its finding to find which variables that most determine MSME performance in Jakarta agglomeration area. MSMEs generate employment, promote market stability, and foster innovation, offering affordable and competitive alternatives that enhance access to goods and services for diverse income groups. By controlling inflation through price-competitive products. Policymakers can leverage the potential of MSMEs to achieve sustainable regional development by reducing reliance on external markets and enhancing local economic resilience. This research results provide findings that MSMEs not only address immediate economic needs but also establish a foundation for long-term regional sustainability. Their contributions to economic inclusivity, innovation, and resilience make them a cornerstone of balanced, sustainable, and inclusive economic growth in the Jabodetabek region.

Keywords - Agglomeration, Development, MSME, Ols, Regional Development

1. INTRODUCTION

Globalization and digitalization are undeniable conditions that make information technology a key driver in reshaping the broader economic landscape. This phenomenon is reflected in the emergence of various electronic MSME platforms, which allow individuals and businesses to interact digitally in buying and selling goods and services (Prasetyo, 2020). One of the most prominent forms of electronic platforms is the MSME sector, which has playing significant role in facilitating online transactions at various levels. In Indonesia, internet penetration is expanding, and digital economic growth is accelerating, the MSME sector has become increasingly popular as a tool for shopping,

selling, and interacting within the electronic MSME ecosystem (Sahoo & Ashwani, 2020). The Jabodetabek agglomeration area, located in the Jakarta metropolitan region and one of Indonesia's big economy cities, also have an impact to the development. As a rapidly growing city, Tangerang has experienced strong economic growth over the past few decades, driven by several factors including its strategic location, growing infrastructure, and the diversity of its industries (Prasetyo, 2020).

Understanding the role and impact of the MSME sector on the local economy is becoming emerging for stakeholders in Jabodetabek agglomeration area. However, several research have found that digital economy and the role of the MSME sector are having significant impact to Depok, Bogor, and Tangerang city due to its many transactions volume. Therefore, this study aims to bridge this knowledge gap by conducting a comprehensive analysis of the impact of the MSME sector on the local economy in Jabodetabek agglomeration area. However, while previous research has explored digital economy and its role to MSME in general, there also remains need for more in-depth and contextual research, particularly in specific issue and variable in certain cities like Tangerang, Bogor, Depok etc. This study aims to bridge knowledge gap by conducting comprehensive analysis of MSME sector impact on local economy in Jabodetabek agglomeration area. By using in-depth case study approach, this research also aims to explore various aspects of MSME sector from consumer perspective, producer activity and government policy to make economy even better. Considering changes in global and local economy condition during and post COVID-19 pandemic, this research also aims to provide a deeper understanding of evolving economy condition in Jabodetabek agglomeration area and its implications for inclusive and sustainable economy development in the future. Economy data for agglomeration areas of Jakarta, Bogor, Depok, Tangerang and Bekasi showed dynamic condition due to uncertainty in past few years ago. Five regions experienced significant decline in year 2020 for expenditure, MSME contribution ratio to GDRP, and

inflation. All regions mostly show sign of recovery and rebound in 2021 and 2022. Although, MSME ratio to GDRP (%UMKM) shows declining growth in 2020 due to change allocation of regional budget from economy issue to health issue to eradicate COVID-19 pandemic. These data reflect profound economy impact from pandemic and ongoing recovery process in all regions.

Much previous research found that the MSME sector is responsible for taking care of many people who lost their jobs in the formal sector. Due to lack of formal sector job demand by company, informal sector has become an alternative to many people for making money. Growth of MSME labour workforce has positive or inclining value except in 2020 when COVID-19 occurred and forced everyone to stays at home and wait for government economy aid. After 2020, MSME in Jabodetabek agglomeration area have rebound to growth again. Many research forecasting this trend will remains for next few years if our riel economy condition getting worse.

II. LITERATURE REVIEW

Trade sector is a vital part of the economy, focusing on the buying and selling of goods and services. It acts as a bridge between producers and final consumers, consisting of two main sub-sectors: wholesale trade, which involves selling large quantities of goods to retailers, distributors, or other businesses; and retail trade, which deals with selling goods and services directly to end consumers in smaller quantities (Melatnebar et al., 2022). This sector plays a significant role in the economy by creating job opportunities across various skill levels, driving economic growth through increased consumption and investment, and facilitating the distribution of goods and services from producers to consumers.

The trade sector can be divided into international trade, which involves exporting and importing goods and services between countries, and domestic trade, which takes place within national borders. Distribution channels, including agents, distributors, and retailers, are key in moving products from producers to consumers. Inflation refers to the general increase in the prices of goods and services within an economy, typically measured by the Consumer Price Index (CPI), which tracks changes in the prices of goods and services consumed by households, and the Producer Price Index (PPI), which tracks price changes from a producer's perspective before goods reach consumers. Inflation can be caused by demand-pull factors, aggregate demand exceeds supply, or cost-push factors, rising production costs drive up prices. Structural inflation can also arise due to imbalances in the economy, such as dependence on imported raw materials. Inflation affects the economy by eroding purchasing power, creating economic uncertainty, and influencing monetary policy. Central banks may adjust interest rates to manage inflation, while fiscal policies, such as government spending and taxation, are used to control aggregate demand (Wicaksono, 2022)

III. METHODS

The research design uses a causal relationship, namely a relationship that is. So, in this study, independent variables and dependent variables are distinguished. The independent variable or influencing variable is the Influence of Product Quality and Digital Business, while the dependent variable or influenced variable is the Income of Micro, Small, and Medium Enterprises in the Jabodetabek Agglomeration Area. This study will also be related to the relationship between variables partially or multiple. In addition, it will explain the established hypothesis so that, in the end, the influence of significant variables will be known. The variables determined, namely the independent variable and the dependent variable, are taken from the field using a survey method that is determined according to the basis of the population and sample. The survey method, according to Nizam et al. (2020) and Werthi et al. (2021), is a study that takes samples from the population and uses a questionnaire as the main data collection tool. The object of the research is carried out by MSME actors in various regions in the Jabodetabek Agglomeration Area. The type of data used is quantitative data, namely the type of data that can be measured (measurable) or calculated directly as a numeric or number variable. Variables in statistics are attributes, characteristics, or measurements that describe a case or object of research. Sources of research data obtained directly from the original source in the form of interviews, opinion polls from individuals or groups (people) or observation results of an object, event, or test result (object), and secondary data obtained from relevant agencies such as BPS, DJPK Kemenkeu, and the Ministry of Cooperatives and UMKM. Researcher using model to determine best implication of many factor that influence MSME performance in Jabodetabek agglomeration area in equation 1 and 2 :

First Model

$$\text{Growth}_{it} = \beta_0 + \beta_1 \text{EXPND}_{it} + \beta_2 \text{JMLH_UMKM}_{it} + \beta_3 \text{TAKER}_{it} + u_{it} \quad (1)$$

Second Model

$$\text{INF}_{it} = \beta_0 + \beta_1 \text{EXPND}_{it} + \beta_2 \text{JMLH_UMKM}_{it} + \beta_3 \text{TAKER}_{it} + u_{it} \quad (2)$$

The time of the object studied is from 2018 to 2022, so that the time series data has a total of 208. The district/city data, namely 5 districts/cities, were taken as cross-sectional data. Panel data is a combination of cross-sectional and time series data. In general, there are 2 types of modeling assumptions, namely the random effect model, and the fixed effect model. which are explained as follows(a) Fixed effect means that in one object that has a constant with a constant magnitude in various time periods. Therefore, the regression coefficient has a fixed magnitude. According to Nachrowi and Usman (2006), the existence of variables that are not included in the modeling makes the intercept non-constant, which means that the intercept can

change. Meanwhile (2) Random Effect is carried out without using pseudo variables, but using residuals. Nachrowi and Usman (2006) stated that this technique calculates correlated errors throughout the panel data. In addition to the fixed effects method, pool data containing differences between individuals or over time can be analyzed using random effects (Wicaksono et al., 2022).

IV. RESULTS AND DISCUSSION

The model specifications used in this study are taken from previous studies by referring to the first model from the study conducted by (Gade, 2022; Kistanti et al., 2020; Kuku & Biswas, 2014; Salim et al., 2021; Simba & Thai, 2019) on changes in input to the rate of economic output. The selection of variables in this model is based on journal references that examine the factors that influence changes in GRDP. In this study, two regression results will be explained in this chapter. The regression results can be seen in the following table:

Table 1. 1st model Regression Estimation

Variable	1 st Equation		
	Coefficient	t-statistic	Prob.
C	0.0464	7.5618	0.00
XPND	0.01809	4.1670	0.00
TAKER	0.0099	5.0891	0.00
JMLH_UMKM	0.023	6.499	0.00
R-Squared	0.77275		
F-statistic	32.0991		
Prob (F-statistic)	0.00		

The regression results show in Table 1 provide information about two models that had the same independent variables and different dependent variables. First model explains that all independent variable which is ratio of MSME expenditure, MSME workforce ratio and MSME itself has positive and significant impact to MSME Growth in Jabodetabek agglomeration area. Meanwhile Table 2 shows 2nd model regression output

Table 2. 2nd model Regression Estimation

Variable	2 nd Equation		
	Coefficient	t-statistic	Prob.
C	0.4306	7.2891	0.00
XPND	0.02909	5.3032	0.00
TAKER	0.03093	5.1501	0.00
JMLH_UMKM	0.0352	6.145	0.00
R-Squared	0.76468		
F-statistic	20.1509		
Prob (F-statistic)	0.00		

The second model indicates that all independent variables have a significant and positive impact on the inflation rate of MSME goods and services. This suggests that inflation rises in tandem with the capacity to increase the production of goods and services, as well

as the overall productivity of the local MSME economy. In this context, inflation acts as a favorable economic signal, reflecting increased demand and higher levels of economic activity. When inflation is accompanied by enhanced productivity, it can lead to improved purchasing power for consumers, as the availability of goods and services grows alongside the rise in prices. Moreover, controlled inflation can create a supportive environment for MSMEs to thrive by encouraging investment, driving innovation, and fostering market expansion. It incentivizes businesses to produce more and optimize their operations, which can lead to better resource utilization and job creation. As MSMEs represent a crucial backbone of local economies, their growth and ability to sustain higher production levels during inflationary periods further contribute to economic resilience and community well-being. Therefore, inflation, when driven by productivity gains, becomes not just a challenge to manage but also an opportunity for inclusive economic development.

- GROWTH = Gross Regional Domestic Product Growth Rate
- β_0 = constant
- XPND = Ratio of MSME sector spending to APBD
- JMLH_U MKM = Number of MSME
- TAKER = Ratio of MSME Workforce to total workforce
- INF = Inflation Rate
- U = Error term
- $\beta_1, \beta_2, \dots, \beta_n$ = Parameter
- i = Agglomeration Area (Jakarta, Bogor, Depok, Tangerang, Bekasi)
- t = Observation Period (2018 – 2022)

Chow Test is a test conducted to choose between the Common Effect Model (CEM) or Fixed Effect Model (FEM). The hypothesis in this test is H0 for common effect model H1 for fixed effect model. Researcher using the fixed/random effect testing-redundant fixed effect-likelihood ratio menu in the EVIEWS 7 application, the results are obtained in table 3.

Table 3. Chow Test Results

Equation 1-2	Cross-section F		
	df	F-stat	Prob
Y = f(TAKER, UMKM, EXPND)	(25,125)	18.36	0.223
Y=(TAKER, UMKM, EXPND)	(25,125)	8.16	0.994

The results of the Chow Test show that F has a p-value of 0.05 or greater than $\alpha = 5\%$ so that H0 is rejected and H1 is accepted. So, the Common effect model estimate is better than the Fixed effect model. The Lagrange - Multiplier Test is a statistical test to choose

which model is best between Common effect and random effect is not necessary. The selection is based on relationship between variables in the equation model used. Research also examines two model with r-square test or coefficient determinants to provide simultaneous influence of independent variable to dependent variables. The value of the coefficient of determination is between 0 and 1. The coefficient value if it approaches one, it is said that the model is getting better ($0 < R^2 < 1$) the closer the relationship between the independent and dependent variables.

Table 4. R² Results Test

Equation	R ²
Y = f(TAKER, UMKM, EXPND)	0.77
Y = f(TAKER, UMKM, EXPND)	0.76

In Table 4, two consecutive equations show the coefficient of determination (R²) values at 0.77 and 0.76. So, in the first equation, the independent variable explains the GRDP growth rate by 77% and the remaining 23% is explained by variables outside the model. Likewise with the second equation is the independent variable can explain the variation in inflation by 76% and the remaining 24% is explained outside the model. The classical assumption tests that will be analyzed in this study are multicollinearity, autocorrelation and heteroscedasticity. These three classical assumption tests will be explained as follows: Multicollinearity test is one of the instruments of the classical assumption test which aims to determine whether there is a relationship or correlation between other independent variables. The condition of correlation between independent variables will produce biased regression results because variables can have general or linear patterns. This study uses a correlation test between variables by looking at the Tolerance and Variance Inflating Factor (VIF) values in equation 3. Tolerance measures the variation of independent variables that are not explained by other independent variables. A low tolerance value is the same as a high VIF value (Ernawati et al., 2022)

$$VIF = \frac{1}{Tolerance} \quad (3)$$

The cutoff value (limit) generally used is Tolerance < 0.10. with a tolerance value of 0.10 and a critical limit value of 0.9 (Ghozali, 2013).

Table 5. Multicollinearity Test 1st equation

	TAKER	EXPND	UMKM
TAKER	1	0.200543	0.06089
EXPND	0.200543	1	0.706748
UMKM	0.067089	0.706748	1

The results of the multicollinearity test are shown in Table 5. In the first equation model, all independent variables have values less than 0.80, indicating no linear relationship between independent variables, meaning that all independent variables are free from multicollinearity. The results of the multicollinearity test are shown in Table 5. In the second equation model, all independent variables have values less than 0.80, indicating that they are free from multicollinearity; this is because there is no linear relationship between independent variables (Hilmiana & Kirana, 2021).

Table 6. Multicollinearity Test 2nd equation

	TAKER	EXPND	UMKM
TAKER	1	0.200543	0.06089
EXPND	0.200543	1	0.706748
UMKM	0.067089	0.706748	1

Heteroscedasticity is a condition of error variance is not identical. Identical or constant (fixed) error variance is one of the assumptions that must be met in linear regression, this is called homoscedasticity (Setiawan & Kusriani, 2010). This study uses the Park method to see heteroscedasticity. The Park method is carried out by regressing the residual logarithm that has been squared with each independent variable, then compare the t_{statistic} value with t_{table} if the t-test is not statistically significant then heteroscedasticity (Dwijayanti & Pramesti, 2021). Heteroscedasticity tests shows in table 7.

Table 7. Heteroscedasticity Tests on 1st and 2nd Model

Variable	Log(res ²)			Conclusion	Sign (0.05)
	t-stat	t-table	Prob		
1 st Equation					
TAKER	0.835395	2.09302	0.3509	t-stat < t-table	Not Significance
EXPND	1.452034	2.09302	0.1781	t-stat < t-table	Not Significance
UMKM	1.281279	2.09302	0.2809	t-stat < t-table	Not Significance
2 nd Equation					
TAKER	2.324666	2.09302	0.5048	t-stat < t-table	Not Significance
EXPND	3.888988	2.09302	0.4477	t-stat < t-table	Not Significance
UMKM	3.167264	2.09302	0.0514	t-stat < t-table	Not Significance

Based on table 6, all variables have a t-statistic value smaller than t-table with a probability value greater than α 5% and are not significant, so it can be concluded that there is no heteroscedasticity problem in the equation of the four regression models (Vieira et al., 2019). Regarding the autocorrelation problem found in the two models, researchers have tried to reduce and eliminate autocorrelation symptoms. In order not to cause unbiased, the regression in this study uses General Least Square. According to Wooldridge (2009), the problem of heteroscedasticity and autocorrelation can be eliminated by using GLS. The consequence of this is that the variance becomes inefficient, but normatively it can still be tolerated because the resulting estimator is still unbiased, consistent and normally distributed. It's just that there is a tendency to cause two unrelated variables to appear to have a relationship or spurious regression even though the model has been improved with a relatively smaller R2 compared to its Durbin-Watson (Sony Erstiawan et al., 2021).

V. CONCLUSION

The MSME sector plays a crucial role in the regional economy of Jabodetabek Agglomeration Area by contributing to most of the employment and economic activities that make the economy better. The impact of MSME goods and services consumption and community shopping behavior can be seen in consumer preferences that shift to local products and prefer to shop at traditional markets and physical stores. The MSME sector also influences the local market structure by providing alternatives for consumers and encouraging the growth of traditional markets, which are often more affordable and diverse. The implications of the role and impact of the MSME sector on the local economy include contributing to inclusive economic development by creating economic opportunities at the local level, supporting economic sustainability through innovation and adaptation, and helping to control inflation

effectively by offering price-competitive products and improving the welfare of society.

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