



## DETERMINANT OF MSMEs PERFORMANCE AND ITS IMPACT ON PROVINCE GRDP IN INDONESIA

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### ABSTRACT

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The purpose of this study was to determine (1) the simultaneous and partial influence of soybean price, consumption of tofu tempeh, the exchange rate of the rupiah against the US dollar, and interest rates factors on MSMEs income, (2) dominant factors on tofu tempeh MSMEs income and (3) the effect of tofu tempeh MSMEs income on the Province GRDP. This research is a quantitative study with a purposive method of determining research areas and a quarterly time series secondary data analysis method from 2009-2019 using OLS Multiple Regression. The analysis shows that all variables simultaneously have a significant effect on MSME income. Partially, the variables that have a significant positive effect on the income of tofu tempeh MSME are soybean prices, consumption of tofu tempeh and the exchange rate, while interest rates have a negative effect. The coefficient of determination of 96% with the magnitude of the determinant partially from the largest in the sequence is the consumption of tofu tempeh, soybean prices, exchange rates, and interest rates, there is no dominant factor. MSMEs income proxy with recursive income has a significant positive effect on Provincial GRDP with a determinant coefficient of 55%. The research findings are that MSMEs are resistant to fluctuations in exchange rates and contribute greatly to the GDRP.

**Contribution/Originality:** The paper's primary contribution is finding that MSMEs are resistant to macroeconomic determinants of fluctuations.

### 1. INTRODUCTION

The availability among foods from soybean is a determinant of food security in Indonesia (Susilastuti, 2017). Soybean is a legume crop with a high protein content (Akibode and Maredia, 2012). Tofu and tempeh are processed foods made from soybeans that have good nutritional and economic potential in Indonesia. According to Sarwono and Saragih (2003) the nutritional and protein content of tofu tempeh is equivalent to animal meat with a high proportion of protein. It was stated by Ambara *et al.* (2017) that tofu and tempeh are popular foods because they are affordable for various levels of society.

The market potential of tofu tempeh food processing products grows MSMEs tofu tempeh is increasing. According to the Department of Industrial and Energy of Jakarta (2014) there are 7,221 MSMEs units in the Special Capital Province of Jakarta. 45% of the total number of MSMEs units in Jakarta Province are tofu tempeh MSMEs. This shows that the majority of MSMEs in the Province of Jakarta are dominated by tofu tempeh MSMEs. In addition, the number of labor at tofu tempeh MSMEs in the Jakarta Province was 8,499 people or 40%

of the total labor at all MSMEs in the Jakarta Province. When viewed from a macroeconomic point of view, MSMEs are able to absorb large labor due to the large population of Indonesia so it can reduce the unemployment rate. In addition, MSMEs are able to increase community income that can contribute to regional income. According to the [Bank of Indonesia \(2015\)](#) MSMEs contribute to GDP (Gross Domestic Product) of around 60% and create jobs. According to [Rudianto et al. \(2019\)](#) MSMEs is a business unit that is resistant to economic crises.

Demand or consumption of tofu tempeh rises from year to year with an average increase of 4.9% per year. Increasing consumption of tofu tempeh makes MSMEs tofu tempeh increase the amount of production. The average consumption of tofu and tempeh in 2017 was 0.157 kg/capita, compared to the rice of 1.571 kg/capita ([Statistics Indonesia, 2017](#)). The increase in demand is also influenced by an increase in population because tofu tempeh is an important component in the diet in Indonesia as a source of vegetable protein. This increase in production will affect people's income which will indirectly increase gross regional domestic product (GRDP). Therefore the role of MSMEs in production to fulfill market needs is very influential on the local economy.

MSMEs have an important role in economic growth, but several studies have shown that the sustainability and resilience of MSMEs are still vulnerable to risk ([Southiseng and Walsh, 2010](#); [Rudianto et al., 2019](#)). The study illustrates cases that occur in small and medium entrepreneurs in many developing countries including in Indonesia who face obstacles to performance growth due to lack of mastery of technology, lack of human resources, not focusing on doing business, and government policies that do not favor small entrepreneurs. These factors will affect the performance of MSMEs which have an impact on the sustainability and resilience of the business.

Other problems include the lack of raw materials because they have to be imported from other countries for the production, marketing, capital, energy availability, infrastructure and information processes ([Sudaryanto et al., 2013](#)). Soybean availability and prices fluctuate because soybean imports are related to the rupiah exchange rate. Financial capital related to interest rates is also a problem. According to [Sulaiman and Abdullahi \(2015\)](#) low-interest rates can improve the performance of MSMEs.

In dealing with problems, according to [Alimudin and Authority \(2018\)](#) the ability of MSMEs to survive and develop depends on internal and external factors. Internal factors such as business scale, stakeholder personality, educational background, and corporate culture, can influence the level of productivity and innovation. While external factors are factors outside the company such as access to capital and policy environment, both government policies or economic conditions in a country. The performance of tofu tempeh MSMEs on internal factors can be seen from income. While for external factors, MSME tofu tempeh leads to exchange rates, interest rates included in government policies and demand for tofu tempeh using the consumption approach.

[Nicolescu \(2009\)](#) suggested that the internal environmental factors of MSMEs affect performance compared to external environmental factors, but they must still consider the economies scale of MSMEs. Based on this background, this study examines the influence of factors of soybean prices, consumption of tofu tempeh, the exchange rate of the rupiah against the US dollar, and interest rates on MSMEs income and analyzes what are the dominant factors and their impact on the provincial GRDP.

## 2. LITERATURE REVIEW

Micro, Small and Medium Enterprises (MSMEs) have a large role in economic development, employment, distribution of development results and are a driving force for growth in economic activity. Attention to the development of MSMEs gives special meaning to efforts to reduce the poverty rate of a country. Growth and development of the MSME sector are often interpreted as an indicator of the success of the development, especially for countries that have low income per capita ([Hafni and Rozali, 2015](#); [Rudianto et al., 2019](#)).

Developing countries are starting to change their orientation when looking at experiences in developed countries about the role of MSMEs in economic growth. MSMEs have important roles in development and economic growth, not only in developing countries but also in developed countries. In developed countries, MSMEs

are very important not only because these business groups absorb the most labor compared to large businesses. In developing countries, especially Asia, Africa, and Latin America, MSMEs play an important role especially in the perspective of employment opportunities and sources of income for the poor, income distribution and poverty reduction and rural economic development (Rahmana, 2008; Tambunan, 2012).

In Indonesia, the criteria for MSMEs according to Law No. 20 the Year of 2008 classified by the number of assets and turnover is owned by a business that is (1). Micro Enterprises with assets up to 50 million rupiahs and a maximum turnover of 300 million rupiahs, (2). Small Enterprises with assets of more than 50 million rupiahs to 500 million rupiahs and turnover of more than 300 million rupiahs to 2.5 billion rupiahs, while (3). Medium Enterprises have assets of more than 500 million rupiahs to 10 billion rupiahs with a turnover of more than 2.5 - 50 billion rupiahs (BoI, 2015).

Criteria for Small and Medium Enterprises Based on Development according to Rahmana (2008) group MSMEs into several criteria, namely: (1). Livelihood Activities, which are Small and Medium Enterprises that are used as employment opportunities to earn a living, more commonly known as the informal sector; (2). Micro Enterprise, is a Small and Medium Enterprises that has a craftsman spirit but does not yet have an entrepreneurial spirit; (3). Small Dynamic Enterprise, is a Small and Medium Enterprise that has an entrepreneurial spirit and can accept subcontracting and export work; (3). Fast Moving Enterprise, is a Small and Medium Enterprise that has an entrepreneurial spirit and will transform into a big business.

In MSMEs, there are several costs, including variable costs and fixed costs. One of the costs of operating a business is the cost of interest and the burden of inflation. In Indonesia, the benchmark interest rate is the Bank of Indonesia rate (Hasanah and Priantina, 2017). Interest rates are determinants of the export of many products (Rudianto *et al.*, 2019).

The exchange rate of the rupiah will affect the performance of MSMEs that are related to inputs and outputs related to other countries. According to Dornbusch *et al.* (2008) a drastically uncontrolled exchange rate of the rupiah will cause difficulties for the business. This is very influential on businesses that use raw materials from abroad or sell their goods on the export market (Rudianto *et al.*, 2019). This statement is also supported by Fauziah (2016) which states that when the rupiah exchange rate against the dollar increases, the number of financing requests will decrease.

Some relevant previous studies include (1). Sudiarta *et al.* (2014) the results of the study showed that the most dominant factor influencing MSMEs performance in Bangli was internal factors. Internal factors in Bangli MSMEs include marketing, access to capital, entrepreneurial skills, human resources, financial knowledge, and business plans; (2). Hanggaeni *et al.* (2017) obtained the results of research that MSMEs' performance is influenced by internal factors namely operational management, marketing, and technical. In addition, the industrial situation also influences the performance of MSMEs. If these factors are strengthened, this will improve the position of MSMEs in the market. On the other hand, these factors also increase business sustainability in the long run; (3). Tandris *et al.* (2014) the results of the study are interest rates, inflation, and exchange rates simultaneously affect credit demand. Interest rates have a negative but significant effect on loan demand in banks. Inflation has no effect on credit demand and the exchange rate has a positive and significant effect on credit demand.

The performance of tofu tempeh MSMEs can be influenced by various factors such as soybean prices, consumption, rupiah exchange rate, and interest rates. The effect of MSMEs' performance determines MSMEs' income so that it will affect the Provincial GRDP. The framework of the relationship between variables in research is as follows Figure 1.

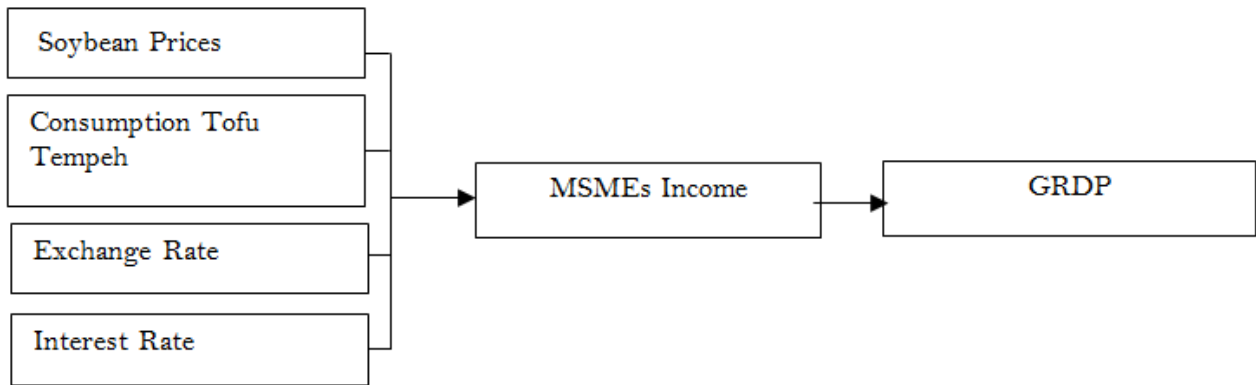


Figure-1. Framework for thinking relations between variables.

There are three hypotheses in this study are as follow:

- a. There is a simultaneous and partial influence of soybean prices, consumption, rupiah exchange rate and interest rates on the income of tofu tempeh MSMEs.
- b. That the rupiah exchange rate factor is dominant on the performance of the tofu tempeh MSMEs.
- c. There is a positive influence of MSMEs' income on Provincial GRDP.

### 3. RESEARCH METHODS

The research location was conducted purposively in the Special Capital Province of Jakarta, Indonesia because it has a high level of consumption of tofu tempeh and a significant contribution in the allocation of labor absorption and income of tofu tempeh MSMEs.

This research is associative quantitative research that is a study that seeks the influence or relationship of two or more variables (Kuncoro, 2007). This research was conducted to determine the effect of soybean prices, consumption, rupiah exchange rates and interest rates on the income of tofu tempeh MSMEs and to determine the effect of MSMEs' income on Provincial GRDP. The data used is the quarterly time series data from 2009-2019.

The independent variables are the price of soybean (X1), consumption of tofu tempeh (X2), Rupiah exchange rate (X3), and interest rate (X4). Income (Y) is the dependent variable, while GRDP (Z) is the determinant. To understand interpretation, several operational definitions and limitations are determined as follows:

- a. Soybean prices are the agreed value between buyers and sellers in transactions in the soybean market measured in Rupiah units.
- b. Consumption is the amount of tofu and tempeh consumed by the population during one week measured in kilograms.
- c. The rupiah exchange rate is the conversion value of one US dollar to the rupiah at the price of tempeh tofu raw material, namely soybeans, which is measured in Rupiah.
- d. The interest rate is the rate on the loan payments or other investments that are measured in annual percentages units.
- e. Income is net revenue in production, which is the difference between revenue and production costs measured in Rupiah.

Data analysis uses OLS Multiple Linear Regression. Data processed with *evIEWS 9.0*. There are two-equation models in this study, namely:

- 1) Analysis of the effect of soybean prices, consumption, rupiah exchange rates and interest rates on the income of the tofu tempeh MSMEs in the Province:

$$I = f(TTP, C, RER, IR) \quad (1)$$

$$I = b_0 + b_1 TTP + b_2 C + b_3 RER + b_4 IR + e \quad (2)$$

Information:

I : Income.

TTP: Tempeh tofu price (rupiah).

C: Consumption (kilograms).

RER: Rupiah exchange rate (rupiah).

IR: Interest rate (percentage).

$b_0$ : Constant.

$b_1 \dots b_4$ : Coefficient of Explanatory variables of TTP, C, RER, IR respectively.

e : error.

2) Analysis of the effect of MSMEs income on the Province GRDP

$$GRDP = b_0 + b_1 Irec + e \quad (3)$$

Information:

GRDP : Gross Regional Domestic Product.

$b_0$ : Constant.

$b_1$ : Coefficient of Explanatory variable of Irec.

Irec: Income (recursive).

e : error.

Furthermore, the above equation is transformed in first difference so that the regression equation becomes as follows:

$$d (GRDP) = b_0 + d (b_1 Irec) + e \quad (4)$$

Information:

d : first difference.

GRPD : Gross Regional Domestic Product.

$b_0$ : Constant.

$b_1$ : Coefficient of Explanatory variable of Irec.

Irec: Income (recursive).

e : error.

## 4. RESULTS AND DISCUSSION

### 4.1. Data Analysis Results

Based on calculations using eviews on the effect of soybean prices, consumption, rupiah exchange rates and interest rates on MSMEs tofu tempeh income have met the classical assumption test, while the effect of recursive income on Provincial GRDP occurs autocorrelation so that the test continues with the transformation of the data with the first difference method.

#### 4.1.1. Effects of Soybean Prices, Consumption of Tofu Tempeh, Rupiah Exchange Rate and Interest Rates on the Income of Tofu Tempeh MSMEs

The first model hypothesis testing in this study was carried out using multiple linear regression test. The results of the F test and t-test are presented in Table 1.

Based on Table 1, it is shown that constants and interest rates are negative, while soybean prices, consumption of tofu tempeh and the exchange rate of the rupiah against the US dollar are positive. The function of the influence of these factors on the income tofu tempeh MSMEs is described in the following equation:

$$I = -16246112309 + 788454.1TTP + 14604037,5C + 313989.5RER - 199016162.9IR \quad (5)$$

Table-1. F Test results and t-test in the first model.

Dependent variable: MSME income

Variable	Coefficient	Std. Error	t-Statistics	Prob. **
C	-16246112309	2038364443,076	-7,970171	0.0000 **
Soybean prices **	788454.1	135583,6	5,815259	0.0000 **
Consumption of tofu tempeh **	14604037,5	2316627	6.304009	0.0000 **
Rupiah exchange rate**	313989,5	87942.11	3,570411	0.0014 **
Interest rates **	-199016162,3	82729428	-2,405627	0.0233 **
R-Squared	.962522	Mean dependent var		7345485572,875
Adjusted R-squared	0.956969	SD dependent var		2585984398,041
SE of regression	536432015,7817	Akaike info criterion		43.18138
Sum squared resid	7,769501304	Schwarz criterion		43,41040
Log-likelihood	-685,9021	Hannan-Quinn criter.		43,25729
F-Statistics	173,3543	Durbin-Watson stat		1.292289
Prob. (F-statistic)	0.0000			

Note: \*\*: Significance at the 95% confidence level.

#### 4.1.1.1. Test F

The F test results in the table show that the significance value is 0,000 where  $\alpha$  is used at 0.05, then 0,000 < 0.05, which means it is significant to the income of tofu tempeh MSMEs. This shows the observed variables namely soybean prices, consumption of tofu tempeh, rupiah exchange rate and interest rates simultaneously have a significant effect on the income of tofu tempeh MSMEs. It can be concluded that all independent variables studied simultaneously have a significant effect on the income of tofu tempeh MSMEs received.

#### 4.1.1.2. Test t

Based on the t-test analysis in Table 1, it can be seen that each variable has a different Probability (Prob.) Value. Each variable has a Prob. value < 0.05, it means that all variables significant to the income of tofu tempeh MSMEs are accepted. This can be seen from the first variable, the soybean price variable. The soybean price variable has a Prob. a value equal to 0,000, where the value is smaller than 0.05. This means that the soybean price variable individually significantly influences the income of tofu tempeh MSMEs. The coefficient value of the soybean price variable has a positive value of 788454.1. This means that every IDR 1 increase in the price of soybeans, will remind the income of tofu tempeh MSMEs.

The second variable is the consumption of tofu tempeh can affect the income of MSMEs tofu tempeh can influence. This proves that the consumption of tofu tempeh significantly influences the income of tofu tempeh MSMEs. Significance of the value of Prob. the consumption of tofu tempeh is 0,000 which is smaller than  $\alpha$  (0.00 < 0.05) which means that it is significant to the income of tofu tempeh MSMEs. The more consumption of tofu tempeh will increase the income of tofu tempeh MSMEs. This is proven by the coefficient value of the tofu tempeh consumption variable which has a positive value of 14604037. This means that each addition of 1 kg/capita consumption of tofu tempeh, it will increase the income of tofu tempeh MSMEs by IDR 14,604,037/quarterly or IDR 3.651009/month.

The variable of the rupiah exchange rate significantly influences the income of tofu tempeh MSMEs. This is seen from the significance of the Prob. value rupiah exchange rate variable is 0.0014 < 0.05, which means that it is significant to the income of tofu tempeh MSMEs. As the rupiah exchange rate increases, so the income of tofu tempeh MSMEs will increase. This proof can be seen from the variable coefficient of the rupiah exchange rate which has a positive value with a value of 313989,5. This means that each increase in the exchange rate of the rupiah against US \$ will increase the income of tofu tempeh MSMEs by IDR 313,989.5. The increase in income due to the increase in the exchange rate is thought to be caused by the producers doing the product strategy by reducing the size of the product at a fixed price so that income can still be maintained.

The interest rate variable significantly influences the income of tofu tempeh MSMEs. The interest rate variable has a value of Prob. of 0.023 where the value is smaller than 0.05. It means that the interest rate variable partially has a significant effect on tofu tempeh MSMEs income. The coefficient value of the negative soybean price variable is -199016162.3. This means that each 1% increase in interest rates will reduce the income of tofu tempeh MSMEs by IDR 199,016,162.3.

4.1.1.3. Analysis of Determination Adjusted R<sup>2</sup>

According to Table 1 indicated that the value of Adjusted R<sup>2</sup> is 0.957. This shows that the variables used such as soybean prices, tofu tempeh consumption, rupiah exchange rate and interest rates affect 96% of the income of tofu tempeh MSMEs, the remaining 4% is influenced by other variables not examined such as the number of workers work and others.

1. The results of the analysis of dominant factors in the performance of MSMEs tofu tempeh.

Based on data processing with SPSS, standardized Beta is obtained as the magnitude of influence as follows:

Table-2. Standardized beta test results in the first model.

Variable	Standardized coefficients beta
Constant	
Soybean prices	.378
Consumption of tofu tempeh	0.415
Rupiah exchange rate	.253
Interest rate	-0,116

The variable is declared dominant if the value of the standardized beta coefficient  $\geq 0.5$ . Table 2 shows that the standardized beta coefficient values for all variables are below 0.5. This shows that there is no dominant variable in influencing the performance of MSMEs tofu tempeh, although the magnitude of the Adjusted R<sup>2</sup> determination coefficient is 96%. Therefore, to find out the magnitude of the effect, the results of the data analysis are sorted from the biggest influence to the smallest effect. The highest standardized beta coefficient value is the consumption variable of tofu tempeh by 0.415. Then the next variable sequence is the soybean price variable with a value of 0.378. The exchange rate variable becomes third after soybean prices with a value of 0.254. The last variable is the interest rate variable has a value of -0.116. The standardized beta value indicates the amount of influence on the income performance of tofu tempeh MSMEs.

4.1.2. The Effect of MSMEs Income on Provincial GRDP

4.1.2.1. Classical Data Assumption Test Transformation

The results of testing classic assumptions on data analysis in the empirical model autocorrelation occur. Based on this, the data transformation is carried out to improve the research model. Data transformation was carried out using the first difference method. The equation is as follows:

$$GRDP - \rho GRDP + 1 = b_0 (1 - \rho) + b_1 Irec - \rho b_1 Irec + 1 + e - \rho e + 1 \quad (6)$$

The  $\rho$  value in the first difference model above is estimated based on the statistical value of Durbin Watson. The value of d in the model is 0.335 so that the value of  $\rho$  can be calculated, namely:

$$\rho = 1 - \frac{d}{2}$$

$$= 1 - \frac{0,335}{2} = 0,8325$$

The results of the classic assumption test on the first difference data transformation model with the estimated value of  $\rho$  based on the statistical value of Durbin Watson are described as follows:

In this study to test the autocorrelation was done by the Breusch-Godfrey test or often referred to as the LM test and the Durbin-Watson test. Following are the results of autocorrelation testing:

**Table-3.** Autocorrelation test results in the second model after transformation based LM test.

Breusch-Godfrey Serial Correlation LM test:

F-statistics	0.320429	Prob. F	0.7286
Obs * R-Squared	0.718741	Prob. Chi-Square	.698

Autocorrelation test can be measured from the Chi-square probability value **Table 3**, if the Chi-square probability value  $> 0.05$  means that there is no autocorrelation. Conversely, if the Chi-Square probability value  $< 0.05$ , autocorrelation occurs. The results of data analysis showed that the Chi-Square probability value of 0.698. This means that the chi-square probability of  $0.698 > 0.05$ , it can be concluded that there is no autocorrelation. Likewise, when viewed from the Durbin-Watson statistical results **Table 4**, the d value of  $dL < 1.785 < du$  means that there is no autocorrelation.

**Table-4.** Autocorrelation test results in the second model after transformation based durbin watson test.

Test equation:

Dependent variable: Resid

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	-116806,5	1617322	-0.07222	0.9430
D (Recursive revenue)	-0,000737	0.002701	-0.272976	.7869
Resid (-1)	0.039583	0.2101113	.188387	0.8520
Resid (-2)	0.194929	0.243889	0.799254	.4311
R-Squared	0.023185	Mean dependent var		3,96563
Adjusted R-Squared	-0,085350	SD dependent var		8314839
SE of regression	8662409	Akaike info criterion		34,90680
Sum squared resid	2026007849382333	Schwarz criterion		35.09183
Log-likelihood	-537,0554	Hannan-Quinn criter.		34,96711
F-statistics	0.213620	Durbin-Watson stat		1.783589
Prob (F-statistic)	0.886081			

4.1.2.2. Hypothesis Test Model 2: Effect of MSMEs income on Provincial GRDP

Hypothesis testing in this study was carried out by using multiple linear regression tests. Hypothesis testing is done using a t-test and F test. The following table shows the results of multiple linear regression hypothesis tests:

**Table-5.** Results of the t-test and F test on the second model after being transformed.

Dependent variable: D ( GRDP)

Method: Least squares

Variable	Coefficient	Std. Error	t-Statistics	Prob. **
C	21277872	1568414	13,56649	0.0000
D (Recursive revenue) **	0.014793	0.002477	5,971224	0.0000
R-Squared	0.551469	Mean dependent var		23612056
Adjusted R-squared	0.536002	SD dependent var		12415311
SE of regression	8456983	Akaike info criterion		34.80122
Sum squared resid	2026007849382333	Schwarz criterion		34.89374
Log-likelihood	-537,4190	Hannan-Quinn criter.		34.83138
F-Statistics	35,65551	Durbin-Watson stat		1.784850
Prob (F-statistic)	0.000002			

Note: Information: Significance at the 95% confidence level.



Based on [Table 5](#), it can be seen that the coefficient of the recursive constant and income is positive. The function of the influence of MSMEs income on Provincial GRDP is as follows:

$$\text{GRDP} = 21277872 + 0.014793\text{Irec} \quad (7)$$

#### 4.1.2.3. Test F

F test results in the table show that the significance value of 0.000 where  $\alpha$  used is 0.05 then  $0.000 < 0.05$  which means it is significant. This shows that the observed variable, that is, MSMEs income has a significant effect on the Provincial GRDP. It can be concluded that the independent variables studied simultaneously have a significant effect on the Provincial GRDP received.

#### 4.1.2.4. Test t

Based on the t-test analysis in the above table, it can be seen that the significance value of tofu tempeh MSMEs' income is 0,000, where the value is smaller than  $\alpha$  0.05. This means that the soybean price variable has a significant effect on the provincial GRDP.

#### 4.1.2.5. Analysis of Determination R<sup>2</sup>

According to the table indicated that the value of R<sup>2</sup> is 0,55. It shows that the variables used are tofu tempeh MSMEs income influences 55% of the provincial GRDP. While the remaining 45% is influenced by other variables such as other business sectors such as the industrial sector.

## 4.2. Discussion

Research on determinants of the performance of tofu tempeh MSMEs on the provincial GRDP identifies the variables that are factors that influence the income of both MSMEs and the provincial GRDP. This study uses multiple linear regression with 2 equation models. The first model is to identify the effect of soybean prices, consumption of tofu tempeh, rupiah exchange rate and interest rates on MSMEs income in the Province. The second model identifies the effect of MSMEs' income with a recursive income approach to the Provincial GRDP. Following this discussion is explained as follows:

### 4.2.1. The effect of Soybean Prices, Consumption of Tofu Tempeh, Rupiah Exchange Rate and Interest Rates on the Income of Tofu Tempeh MSMEs

The results of the study showed that all variables, namely soybean prices, consumption of tofu tempeh, rupiah exchange rate, and interest rates significantly affected the income of tofu tempeh MSMEs. This proves that these variables have a high influence on the income of tofu tempeh MSMEs. The first variable that influences the income of tofu tempeh MSMEs is the soybean price variable. Soybean prices have a positive effect on the increase in income of tofu tempeh MSMEs. This is because the soybeans used by the tofu tempeh MSMEs are imported soybeans that are highly dependent on the exchange rate. Soybean production in the country is not able to fulfill national needs, therefore the government imported soybeans. This is in accordance with [Akibode and Maredia \(2012\)](#) that rising consumption in developing countries and international trade pressures, needs that cannot be fulfilled from within the country are fulfilled with imports.

According to [Kompas \(2019\)](#) the increase in soybean prices makes tofu tempeh craftsmen choose to reduce their size compared to raising the selling price. This makes the amount of tempeh sold more, which can increase the income of MSMEs tofu tempeh. In addition, MSMEs tofu tempeh can reduce production costs so that it is more efficient. According to [Juwita and Satria \(2017\)](#) production cost efficiency is important to achieve optimal profit. The efficient use of resources is one way to maximize profits. The strategy is a product and production strategy in the marketing mix. The product strategy in this marketing mix includes product diversity, quality, design, features,

brand names, packaging, sizes, services, guarantees and rewards (Kotler, 2002). The income of tofu tempeh MSMEs increased when soybean prices rise due to the amount of consumption of tofu tempeh which continued to increase along with population growth and the nature of consumers of tofu tempeh is an effective consumer, meaning that consumers continue to buy despite changes in supply. Then, the existence of a product and production strategy from MSMEs tofu tempeh can reduce production costs when soybean prices rise thereby increasing the income of tofu tempeh MSMEs even though soybean prices are rising.

In the second variable, tofu and tempeh consumption, there is a positive influence on the income of tofu tempeh MSMEs. This shows that the more consumption of tofu tempeh, the tofu tempeh income will also increase. According to McFarlane and O'Connor (2014) an increasing population that is proportional to public awareness in consuming nutritious and inexpensive foods results in increased levels of consumption and demand for processed soy foods. This increase was due to the people's consumption needs which tended to increase. Even according to Damardjati *et al.* (2005) the demand for processed soybeans such as tofu and tempeh is predicted to continue to increase significantly. It is also directly proportional to the increasing population. Thus, people's consumption of tofu and tempeh which is increasing due to the increasing population will increase the demand for tofu tempeh as nutritious food at low prices, impacting the income of MSMEs.

The exchange rate variable also has a positive influence on the income of MSMEs tofu tempeh. This exchange rate variable is a variable that also influences soybean prices. This is consistent with empirical research from Saygi and Bayhan (2011); Baiyegunhi and Sikhosana (2012) which states that the depreciation of the exchange rate will cause imported goods to be more expensive compared to the price of local goods. When the exchange rate rises or the rupiah weakens, the price of imported soybeans rises. This is because the raw material for tofu tempeh is soybeans, especially soybeans that are widely circulated on the market are imported soybeans so that they are closely related to the exchange rate. The exchange rate of the rupiah against the US dollar rises or the rupiah weakens will make the price of imported soybeans go up. With the increase in the price of imported soybeans, MSMEs chose to carry out a product strategy by reducing the size of tofu and tempeh, and the production strategy by reducing production costs as explained in the discussion above. While the consumption of tofu tempeh is increasing due to the increasing population, so demand is also rising. This allows the income of tofu tempeh MSMEs to increase even though the rupiah exchange rate against the US dollar rises or the rupiah weakens. This shows that the performance of tofu tempeh MSMEs income is not susceptible to exchange rate fluctuations, in line with the reality in Indonesia during the 2008 global crisis, MSMEs are generally resistant to economic crises, as expressed by Moldovan *et al.* (2013); Vandenberg (2009).

The interest rate variable has a negative influence on the income of tofu tempeh MSMEs. If interest rates increase, the income of tofu tempeh MSMEs will decrease. The interest rate is related to the people's business credit called KUR, this KUR is an alternative choice of MSMEs in their production capital so that when interest rates rise it will affect the income of tofu tempeh MSMEs. This is in line with research by Purnamayanti *et al.* (2014) that there is an influence of lending and capital with interest rates on MSMEs' income at banks. Therefore, when bank interest rates on capital loans are low, it will also affect the income of tofu tempeh MSMEs, which also increases. Tofu tempeh MSMEs use low-interest credit as the capital of tofu tempeh production, with low-interest rates, tofu tempeh MSMEs pay fewer installments so that the income of tofu tempeh MSMEs increases.

According to the results of the study, of the four variables studied there were no dominant variables because the coefficient value was below the minimum threshold. These results indicate that there is no dominant variable in influencing the performance of MSMEs tofu tempeh. This can occur because there are other variables that are not included in the model. Therefore the results of this data analysis can sort the variables with the greatest influence on the smallest effect. The sequence of variables that has the biggest influence to the lowest effect is the tofu tempeh consumption variable, soybean price variable, exchange rate variable and the last is the interest rate variable

#### 4.2.2. The Effect of MSMEs Income on Provincial GRDP

The income of tofu tempeh MSMEs does not directly affect the Provincial GRDP. Therefore, with a recursive approach, the income of MSMEs is transformed into income that can directly influence the Provincial GRDP. This can be seen from the  $R^2$  result of 55%, meaning that there are still many other factors that influence changes in GRDP. According to [Statistics Indonesia \(2019\)](#) the Provincial GRDP consists of many sectors, 6 of which are the electricity and gas procurement sector; government administration sector, defense, and social security; information and communication sector; transportation and warehousing sector, sector as well as company service sector and manufacturing industry sector. MSMEs tofu tempeh is a sub-sector part of the food processing industry sector.

The largest number of MSMEs in the Province of Jakarta was tofu tempeh MSMEs, which was 37.3% ([Jakarta's Industrial and Energy Department, 2014](#)). This shows that MSMEs tofu tempeh is a contributor to regional income that is sufficiently considered even though it cannot directly influence. These results were also revealed by [Tambunan \(2011\)](#) that the share of GDP from MSMEs was greater than that of large businesses analyzed because the number of MSMEs was very large. In addition, according to data compiled by the [BoI \(2015\)](#) the MSMEs business contributed around 60% of the Gross Regional Domestic Product and opened up employment opportunities for the community. Thus it can be concluded that the increasing income of tofu tempeh MSMEs also increases the Provincial GRDP.

## 5. CONCLUSION

The conclusions of this study are as follows:

- 1) Variables soybean prices, consumption of tofu tempeh, rupiah exchange rate and interest rates simultaneously significantly affect the income of tofu tempeh MSMEs with a 96% determinant coefficient.
- 2) Variables soybean prices, consumption of tofu tempeh, rupiah exchange rate partially have a significant positive effect on tofu tempeh MSMEs income, while interest rates have a significant negative effect.
- 3) There is no dominant factor. The sequence of variables with the greatest influence on the smallest influence on the performance of MSMEs tofu tempeh is the consumption of tofu tempeh, soybean price variables, exchange rate variables, and interest rate variables.
- 4) The MSMEs income variable proxy by recursive income has a significant positive effect on the Provincial GRDP with a determinant coefficient of 55%.

The findings of this study are that MSMEs tofu tempeh is resistant to exchange rate fluctuations and contributes significantly to the provincial GRDP.

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