

The Influence of Labor and Investment in Small Scale Industry to the GDRP in South Sumatra Province

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Abstract—This study discusses the influence of labor and investment in Gross Domestic Regional Product (GDRP) in 17 districts or cities in South Sumatra Province during the years 2016-2018. Secondary data were obtained from the published South Sumatra province and the Department of Industry, South Sumatra Province. Analysis of data using panel data regression with the help of an application program using the E-views 8.0. Fixed Effect Model regression method was chosen. The results of this study indicate that the variable labor is significant positive effect and investment variable is significant positive to the GDRP of South Sumatra. The determinant coefficient value indicates that the proportion of variable influence of labor and investment to the GDP is 99.69 percent variable.

Keywords: *Gross Domestic Regional Product (GDRP), investment, employment, small industries*

I. INTRODUCTION

The role of the small industrial sector is an important factor in the economy. The small industry can absorb labor and contribute to the Gross Regional Domestic Product (GDRP). In the province of South Sumatra, there are several small industrial sectors to absorb the labor force and stimulate the economy. The small industry consists of the food industry; clothing and skin industry of rubber; chemical industry and building materials; metal industry and services; handicraft industry and the public.

TABLE I. SMALL INDUSTRIES in SOUTH SUMATERA PROVINCE

Industry	2017		2018	
	Business unit	Labor	Business unit	Labor
Food	4,760	19 556	5338	21 096
Clothing and skin of rubber	748	7209	876	7383
Chemical and building materials	3,650	22 492	3,645	23 020
Metals and services	2,362	10 101	2,435	10 425
Crafts and general	480	3,367	536	3523
Total	12,000	62 725	12 830	65 447

^a. Source: Department of Industry, South Sumatra Province, 2017-2018

Based on the Regional Medium Term Development Plan (RPJMD) of South Sumatra Province in 2019-2023, the development vision of South Sumatra province is "Sumsel Maju Untuk Semua". To achieve this vision, one of the government's mission is to build South Sumatra based economic populist who supported agriculture, industry, and SMEs are tough to overcome unemployment and poverty in urban or urban. Problems on the small industry is the limited working capital, lack of investment, banking credit procedures are complicated, and high credit interest. Investing in micro-industry has an important role in improving the economy and employment.

The success of growth, can't be separated from the increased investment. Investment is the key determinant of economic growth, as well as will be boosted output significantly, also automatically increases the input demand, which in turn will increase employment opportunities. Investment is the mobilization of resources to create or increase the capacity of production or income in the future. Overview of the development of regional development can't be separated from a distribution and allocation of investment [8].

Based on data from the Department of Industry of South Sumatra Province, there has been an increase in investment in small industries. The increase in investment was IDR 57,469,878,000 from 2017 to 2018 to encourage an increase in small industries by 6.92 percent and create employment by 4.34 percent.

TABLE II. INVESTMENT, SMALL INDUSTRY, AND LABOR IN SOUTH SUMATRA PROVINCE

Year	Investment	Small Industry	Labor
2017	IDR 441.803.997.000	12.000	62.725
2018	IDR 499.273.875.000	12.830	65.447

^b. Source: Department of Industry, South Sumatra Province, 2017-2018

Given the important role of small industries, it is necessary to further study the development of small industries, as well as the effect of investment on regional income or GDRP of business sector.

II. LITERATURE REVIEW

A. Gross Regional Domestic Product

The GDRP is the total value-added goods and services resulting from all economic activities throughout the region in a particular year period generally within one year. The GDRP of a region depicts economic growth in the region. Figures GDRP in an area illustrates the implementation of development that has been achieved.

B. Investment

Economic theory interpret or define investment as expenses for the purchase of capital goods and equipment production to replace and augment especially capital goods in the economy that will be used to produce goods and services in the future [3].

According to the classical theory that investment is an expenditure that is intended to improve the community's ability to boost production. So the investment is an expenditure that would increase the amount of the means of production in the society which would ultimately increase revenue so that the Gross Domestic Regional Product (GDRP) increased [9].

Investment not only increases the production factors or economic growth, but also promote employment. The higher the investment, the higher employment. High or low investment depends on the interest rate.

C. Previous Studies

In research [10] the results of the F statistical test are investment, inflation, and road infrastructure development jointly have a significant effect on economic growth in South Sumatra Province. The results of partial test, investment and road infrastructure development have positive and significant effects on economic growth. Inflation variable has a positive but not significant effect on economic growth.

Based on the article [11] shows that investment has positive and significant on employment in formal small industries in districts or cities in South Sumatra Province. Based on the test results show that variations in variables employment by 87% is determined by investment variable.

According to research conducted [4] regarding the impact of investments in the agricultural sector to the Gross Domestic Regional Products (GDRP) of agriculture in West Java stated that the Foreign Capital Investment (FCI) and exchange rate have a positive and significant impact to Gross Domestic Regional product. Then the Domestic Capital Investment (DCI) has the positive effect of labor but not Significantly to Gross Domestic Regional Product. BI has a significant negative effect on Gross Domestic Regional Product.

According to [6], labor and investment has a positive effect on the Gross Domestic Product in the province of North Sumatra. The percentage of domestic investment, foreign investment, employment and positive effect on the Gross Regional Domestic Product of North Sumatra.

In research [7] on investment, government spending, and labor to GDRP Banten Province. Stating that simultaneous and partial investment, government spending, and labor positive significant effect on the

Gross Domestic Regional Product of Regency or City in the province of Banten.

III. RESEARCH METHODS

This study analyzes the influence of investment and employment in small industry to the Gross Regional Domestic Product (GDRP) in the province of South Sumatra. In this research, data used is a panel data of investment, labor, and the GDRP of 17 districts/ cities in South Sumatra province in 2016-2018. Based on data in the Central Statistics Agency (BPS) of South Sumatra and Department of Industry of South Sumatra Province. The analysis technique used in this research is multiple regression analysis.

$$\alpha + \beta_1 LNL + \beta_2 LNI + e_i = LNGDRP \quad (1)$$

Wherein, the GDRP is the GDRP of South Sumatra, α is a constant, β_1 , β_2 is the coefficient of each variable, L is labor in a small industry, I is an investment in a small industry, and e is the error term. Because it uses panel data that would require the best model selection with method Chow test and Hausman test. Because it is necessary to use multi regression classical assumption test manner normality test, multicollinearity, autocorrelation, and heteroscedasticity. To see the effect of the statistical test used consists of Statistical Test-F, Partial Test, coefficient determinant test.

IV. RESULTS AND DISCUSSION

A. Selection of the Best Model

1) Chow Test

Chow test is used to determine the best model among the models of common or fixed models. Following the results of the Chow test:

TABLE III. RESULTS CHOW TEST

Effects Test	Statistic	d.f.	Prob.
Cross-section F	64.441934	(16,32)	0.0000
Cross-section Chi-square	178.662242	16	0.0000

^c Source: Data Processing Results, Eviews 8.0

Chow test showed the value Prob. F is 0.0000 to 0.0 p-value < α 0.05 and Prob. chi-square value is 0.0000 to 0.0 p-value < α 0.05. A probability value below the value of alpha, then Ho is rejected, which means the chow test is the best model is the fixed effect model.

2) Hausman Test

Hausman test aims to determine whether the fixed effect model or random effect models that have the best model. Following the results of Hausman test:

TABLE IV. RESULTS HAUSMAN TEST

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	18.348253	2	0.0001

^d Source: Data Processing Results, Eviews 8.0

If the probability value < 0.05 then H0 is rejected or in other words, the model chosen is a fixed effect, and vice versa if the probability value > 0.05 then H0 is accepted, which means random effect models. Hausman test results

showed that the value of Probability Random cross-section is 0.0001, which means that the probability of < 0.05 and a fixed-effect model is accepted.

B. Classic Assumption Test

1) Multicollinearity Test

TABLE V. RESULTS MULTICOLINIERITY TEST

Variabel Independen	R ² Parsial	R ² Model
Labor	0.791396	0.996954
Investment	0.791396	0.996954

^d Source: Data Processing Results, Eviews 8.0

The partial regression value of the dependent variable (labor variable and investment variable) each has a value of 0.791396. While the R2 model value is 0.996954. The partial R2 value is smaller than the R2 value of the model. Then the regression model does not occur multicollinearity because there is no partial regression R2 value that is higher than the R2 value of the regression model.

2) Heteroskedasticity Test

In this study heteroscedasticity tests done using the White test.. If the probability value > 0.05 then the model is free from heteroscedasticity assumption violation, and vice versa.

TABLE VI. RESULTS HETEROSKEDASTICITY TEST

F-statistic	2.145896	Prob. F(2,48)	0.1281
Obs*R-squared	4.185770	Prob. Chi-Square(2)	0.1233
Scaled explained SS	4.040051	Prob. Chi-Square(2)	0.1327

^e Source: Data Processing Results, Eviews 8.0

The P value is indicated by the value of prob. Chi square (2) in Obs * R-Squared is 0.1233. Because the P value is 0.1233 > 0.05, the regression model does not have heteroscedasticity.

3) Autocorrelation Test

Autocorrelation in this study using the Durbin-Watson test (DW test). Criteria for acceptance or rejection will be made to the value of dL and dU, which is determined based on the number of independent variables in the regression model (k) and the number of samples (n).

In this study, the number of samples used is 51 samples (n) and the number of independent variables in 2 (k), with a significance level (error) 0.05, then the value of the Durbin-Watson table shows that the value of dL = 1.4684 and value dU = 1.574. Calculations using the Durbin-Watson test, the value of Durbin-Watson (DW) count is 1.7330, this value is greater than 1.574 and less than 2.3691 (4-dU). Then this means that the estimation model is free from infringement autocorrelation.

C. Statistic Test

1) Simultan Significance Test

F test is used to determine the effect of independent variables (labor and investment) are included together and has a significant effect on the dependent variable (Gross

Regional Domestic Product). The regression results indicate that the probability (F-statistic) is 0.0000 less than the alpha level of 0.05. The independent variables significantly influence the dependent variable (significant), in other words the change in the dependent variable (GDRP) can be explained by changes in the independent variable (labor and investment).

2) Parsial Test

Partial test (t-test) was used to determine the significant influence of each independent variable on the dependent variable, to explain the changes in the independent variable on the dependent variable is real. T-test results in this study demonstrate the value of a variable labor probability is 0.0008 and 0.0038 are a variable investment is above 0.05. This means that the variable labor and investment has significant effect on the GDRP variable.

3) The Coefficient of Determination Test

Value can be measured by the coefficient of determination R-square value or Adjusted R-Square. The R-Squared value of this research is 0.996954. This value indicates that the proportion of variable influence of labor and investment to the GDRP is 99.69 percent variable. In other words, it was 0.31 percent influenced by other factors that do not exist in the regression model.

D. Results Interpretation

The results of the estimation model selection have been done before is the fixed effect model. Here are the results of the panel regression estimate fixed-effect model in this study:

TABLE VII. REGRESSION RESULTS USING FIXED EFFECT MODEL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.90405	0.038923	768.2790	0.0000
LNL?	0.128381	0.034553	3.715434	0.0008
LNI?	0.029436	0.009445	3.116698	0.0038
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.996954	Mean dependent var	30.20393	
Adjusted R-squared	0.995241	S.D. dependent var	1.000048	
S.E. of regression	0.068986	Akaike info criterion	-	
			2.230818	
Sum squared resid	0.152290	Schwarz criterion	-	
			1.511118	
Log likelihood	75.88586	Hannan-Quinn criteri	-	
			1.955800	
F-statistic	581.9594	Durbin-Watson stat	1.574588	
Prob (F-statistic)	0.000000			

^f Source: Data Processing Results, Eviews 8.0

Based on the results table if the data above, the equation of panel data regression is:

$$LNGDRP = 29.90405 + 0.128381LNL + 0.029436LNI + ei$$

Is a constant value of 29.90 shows that if the independent variable labor and investment value is 0 then the magnitude of the GDRP is was 29.90. The regression coefficient of the labor variable indicates a value of 0.1283 which indicates a positive direction. This means

that if a variable is employment increased 1 percent then the variable is the GDRP will rise 12,83 percent. The value coefficient regression in investment is 0.0294 which shows a positive direction. The assumption of other variables constant, if the variable investment increased 1 percent, the variables are the GDRP will rise 2.94 percent.

E. Discussion

1) Influence of Labor the GDRP

The influence of labor in the small industrial sector to the GDRP of South Sumatra tested positive and statistically significant. This means that if labor has increased then an increase in the GDRP. this is in line with [6] which states that investment and labor have a positive and significant effect on GRDP Sumatera Utara.

Based on data from the Department of Industry South Sumatra Province the number of labor in the small industry in the years 2018-2018 was 10.30 percent increase. Labor in 2016 was 59.334 people, in 2017 was 62.725 people, and in 2018 was 65.447 people. GDRP by industrial origin at the district/city in South Sumatra province in the year 2016-2018 was 16.76 percent increase. GDRP in 2016 is IDR 361.474.194.000.000, GDRP in 2017 is IDR 390.188.582.000.000, and the GDRP in 2018 increased to IDR 422.058.989.000.000. Increased labor effect on the GDRP.

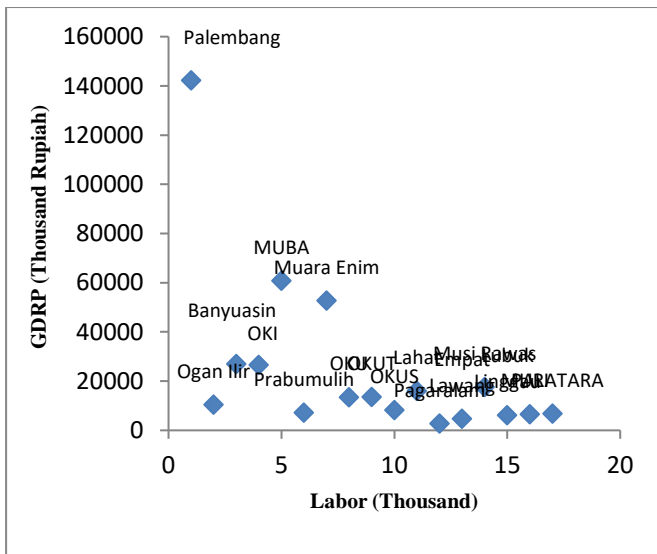


Fig. 1. LAND GDRP IN DISTRICT/ CITY IN SOUTH SUMATRA PROVINCE, 2018

a. Source: Department of Industry, South Sumatra Province, 2018

In 2018 the average GDRP of South Sumatra Province is IDR 24.826.999.352.941, the highest GDRP in Palembang, Musi Banyuasin, and Muara Enim Regencies. The average labor force in South Sumatra Province is 3.850, the highest labor small industry is in Palembang City, Ogan Ilir Regency, and Banyuasin Regency.

2) Influence of Investment the GDRP

The effect of investment in small industries to the GDRP of South Sumatra is negative and statistically significant. This means that if investment has increased

then an decrease in the GDRP. This research is in line with the study of [7] which states that investment have a posyive and significant effect on GDRP Banten.

Based on data from the Department of Industry of South Sumatra province the amount of investment in small industry in 2016-2018 increased by 20,07 percent. In the same time, the number of GDRP South Sumatra province increased by 16.76 percent. In 2018, the average investment in small industries in South Sumatra is IDR 29.369.051.471. The highest investment was found in Palembang city, Ogan Komering Ilir Timur and Pagaralam.

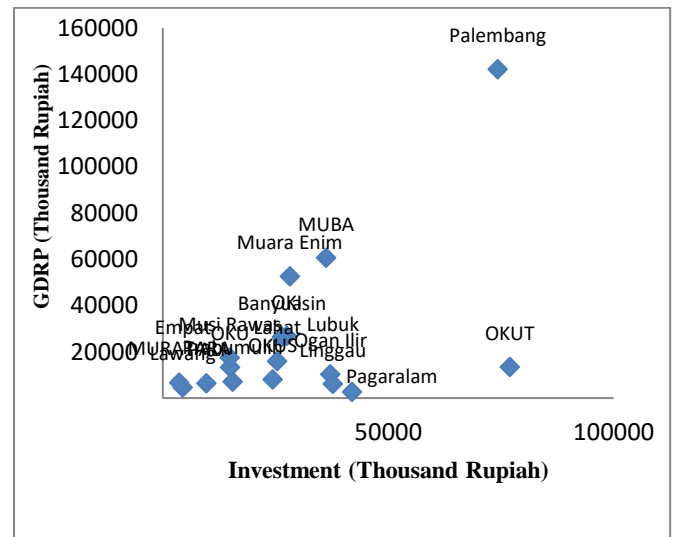


Fig. 2. INVESTMENT AND GDRP IN DISTRICT/ CITY IN SOUTH SUMATRA PROVINCE, 2018

b. Source: Department of Industry, South Sumatra Province, 2018

V. CONCLUSION

Based on the statistical data testing through the regression coefficient test, the conclusion of the analysis showed that investment and labor variables in small scale industry significantly influence the GDRP in the district/city in South Sumatra province during the period 2016-2018. Based on the statistical data testing through the regression coefficient test individually, variable labor is significant and positive effect on the GDRP. Investment variables significant and positive effect on the GDRP.

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