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The Effects of Wages and Investment on Labor Absorption: Comparative Analysis in the Western Region of Indonesia and the Eastern Region of Indonesia

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Abstract: *This research aims to know how much the influence of wages on labor absorption directly and indirectly through investment both in the Western Region of Indonesia and in the Eastern Region of Indonesia. The data used are secondary data obtained from Statistics Indonesia. The unit of analysis is the panel data from 20 provinces in the Western Region of Indonesia and 13 provinces in the Eastern Region of Indonesia (2010-2019). The method of analysis is the estimation method of the simultaneous equation. The research findings show that wages have contributed directly to labor absorption positively on the Western of Indonesia and negatively on the Eastern Region of Indonesia. Therefore, it is necessary to have differences in minimum wage policy treatment in both the Western Region of Indonesia and the Eastern Region of Indonesia.*

Keywords: *wages, investment, labor absorption, comparative analysis, the Western Region of Indonesia, The Eastern Region of Indonesia*

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I. Introduction

The availability of employment opportunities has always been an important issue that needs to be studied further because it involves the welfare of the community as a whole. Where, the number of jobs that are not able to absorb the entire workforce. Of course, this will create socio-economic problems, such as high crime rates due to low levels of social welfare, and so on.

Moreover, the availability of jobs is only focused on certain areas, especially in the Western Region of Indonesia. This is what causes an imbalance in the availability of job opportunities, which causes developed regions to be more advanced with greater human resources than other regions. This large human resource is caused by workers who migrate from the Eastern Region of Indonesia to the Western Region of Indonesia which has more jobs. So this is what causes disparities in labor between the Western Region of Indonesia and the Eastern Region of Indonesia [1].

Then the determination of the minimum wage in each province can also create labor disparities. This occurs because the minimum wage at the Western Region of Indonesia is higher than that in the Eastern Region of Indonesia, which causes workers to choose to migrate to areas with higher wages. This labor migration will be able to increase the number of workers who offer their services in certain areas. With the fixed minimum wage, employment opportunities cannot absorb all the additional labor.

Meanwhile, it should be noted that wages can also create price illusions. The price illusion is created due to a lack of public understanding to distinguish between nominal and real prices. When people prefer to migrate to areas with a minimum wage that is higher than the minimum wage in their area. The workers ignore the fact that the higher minimum wage rate is determined by the general level of prices for goods in the area. So that a higher wage in the the Western Region of Indonesia does not mean that in real terms it will also be greater than the wage in the Eastern Region of Indonesia [2].

The different economic conditions in western Indonesia and eastern Indonesia also greatly affect job opportunities. The better economic growth will certainly have a positive correlation with the availability of jobs. However, the development that is only centered on the western region and the high migration of the population to areas with better capital turnover causes the Eastern Region of Indonesia to be increasingly left behind. As a

result of economic activity in the eastern Indonesian region that is not as productive as the western one, which causes relatively lower employment opportunities, labor, and even wages [3].

The impact of the unequal distribution of labor due to disparities in development and wage levels in western Indonesia and eastern Indonesia causes labor problems such as uneven employment growth, large-scale labor migration flows from eastern Indonesia to western Indonesia, and the amount of unemployment continues to increase in various regions. Various policies have been set by the government to address labor problems in Indonesia but have not been able to create equitable growth in employment opportunities [1]. So that disparities in labor absorption that can create employment problems are the basis for the author to conduct a study on how wages and investment affect employment opportunities in the Western and Eastern Indonesian Regions.

Overall, this research is intended to know how much the influence of wages on labor absorption directly and indirectly through investment in both the Western Region of Indonesia and the Eastern Region of Indonesia. Practically, the results of this study are expected to be an input for policymakers in overcoming the problem of labor market imbalances that can create unemployment both in the Western Region of Indonesia and in the Eastern Region of Indonesia. This research is also expected to be an evaluation of macroeconomic performance in Indonesia with the variables that have been determined in the formulation of problems in both the Western Region of Indonesia and the Eastern Region of Indonesia.

II. Literature Review

2.1 Debate on Labor Absorption Theory

The development of Macroeconomics studies the structure, performance, and behavior of the economy as a whole. The focus of research in macroeconomics is the understanding of the determinants of general trends in the economy related to economic growth, employment opportunities, inflation, and international transactions. Of course, good economic performance can create jobs with low inflation and sustainable economic growth. Where there is a close relationship between policies and economic performance [4].

Keynesian thought is a milestone in modern macroeconomics, although before those Classics had discussed labor, business cycles, inflation, and growth, the discussion used the micro approach, using market mechanisms. Then the great depression showed that market mechanisms and assumptions of information perfection were unreliable. The reality is that in the Great Depression, market mechanisms failed to coordinate the economy. So that Keynes said there was a need for a third party (government) coordinating to overcome this failure.

Keynes's theory is mainly related to the idea of market failure, and involuntary unemployment complicates the reconciliation between the Keynesian and Classical camps [4]. The general equilibrium theory says that there will be equilibrium in every market. According to the classical view, if there is a surplus of labor, in this case, unemployment can be prevented by a price mechanism in the free market so that the created demand can absorb all supply.

Misallocation of resources that can cause unemployment is temporary because it is overcome by the price mechanism [5]. So that if there is an excess supply of labor, wages will fall at a level of equilibrium which causes production costs to fall and the demand for labor will continue to increase because producers can expand production due to the benefits obtained from decreasing wages.

2.2 Theoretical Relation of Wages on Investment and Labor Absorption

In developed countries wages are a selection tool used to obtain quality labor with wages as a productivity driver and can be an incentive mechanism for workers [6]. Another case states that workers will demand wages based on their level of productivity with the number of wages paid can be above or below the minimum wage level [7].

Furthermore, the low-skilled labor in developed countries can be disadvantaged by the existence of trade relations with developing countries that can reduce the wages of low-skilled workers in the United States and Europe [8]. Similarly, the opinion of Krugman also focuses on shifting relative demands for workers with different skills. In America, the unions of technological change have been absorbed by greater wage inequality. Meanwhile, in Europe, the preference for lower-wage differentials causes the wages of workers increasing which can lead to an increase in unemployment [9].

One of the factors that can affect labor absorption is wages [10]. The determination of the wage level by the local government will have an impact on the level of labor absorption that occurs in an area. An increase in the value of the wages set by the government in the minimum wage policy can result in a decrease in the number of people working in a region [11].

2.3 Theoretical Relation of Investment on Labor Absorption

The resources that will be used to increase income and consumption in the future are called investments [12]. So that investment can be interpreted as spending or purchasing capital goods and production

equipment to increase the ability to produce goods and services available in the economy, where investment can also be referred to as investment or capital formation.

Investment value can be one of the factors determining the rate of economic growth and besides being able to significantly increase output, the investment will also increase the demand for input, namely labor. So that the investment can encourage employment and affect the provision of job opportunities [13].

Investments invested in a country or region are determined by several factors, namely the interest rate, expected rate of return, economic growth rate, corporate profit rate, political situation, and technological progress [14]. The existence of investment activities in a country or region can have a huge impact on the economy and expand employment opportunities because the investment can increase the amount of capital. Without investment, there will be no new factories/machines, and thus no expansion.

III. Conceptual Framework

The model and the hypothesis of this research can be seen in Fig. 1. Wage is an exogenous variable, Investment is an intervening endogenous variable, and labor absorption is an endogenous variable which also the target study.

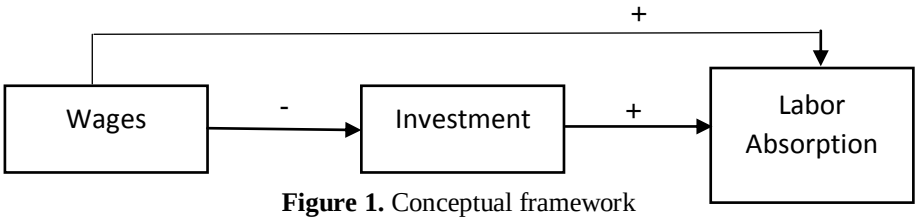

Figure 1. Conceptual framework

IV. Methodology

The data used in this study is secondary data obtained from the Statistics Indonesia and the Directorate General of Fiscal Balance. Estimation, analysis, and research were carried out using panel data, namely a combination of time series from 2010 to 2019 and cross-section with 33 provinces in Indonesia with 20 provinces in the Western Region of Indonesia and 13 provinces in Eastern Region of Indonesia. The selection for the 2010 - 2019 period was due to the fact that in this period, the Indonesian economy had entered the post-crisis recovery stage and there were many issues regarding employment in the agriculture, industry, trade, services, and especially mining sectors.

Data obtained from the Statistics Indonesia include the provincial minimum wage, the number of the workforce working, the number of the labor force, investment as seen from the realization of PMDN and PMA, and the quality of human resources as seen from the workforce with high school education to working universities. Then the total population is aged 15-64 years. The data obtained from the Directorate General of Fiscal Balance are government expenditures as seen from provincial and regional capital expenditures.

Simultaneous Equation Model (SEM) in this research can be seen in the following functional equation:

$$LnY_{1kit} = \alpha_0 + \alpha_1 LnX_{1kit} + \mu_1 \quad \text{.....(1)}$$

$$Y_{2kit} = \beta_0 + \beta_1 LnY_{1kit} + \beta_2 LnX_{1kit} + \mu_2 \quad \text{.....(2)}$$

Where, Y_{1kit} is investment in area k (the Western Region of Indonesia or the Eastern Region of Indonesia) and provincial panel data i and year t, measured in Rupiah; Y_{2kit} is labor absorption in area k (the Western Region of Indonesia or the Eastern Region of Indonesia) and Provincial panel data i and year t, measured in percent; X_{1kit} is wages in area k (the Western Region of Indonesia or the Eastern Region of Indonesia) and panel data for Province i and year t, measured in Rupiah; α_0 and β_0 are constants; α_1, β_1, and β_2 are each as parameters to be estimated; μ_1 and μ_2 are random error terms.

The reduced form based on Equation 1 and 2 can be presented in the following equation:

$$LnY_{1kit} = \alpha_0 + \alpha_1 LnX_{1kit} + \mu_1 \quad \text{.....(3)}$$

$$Y_{2kit} = \pi_0 + \pi_1 LnX_{1kit} + \mu_{12} \quad \text{.....(4)}$$

Where α_0 and π_0 ($\beta_0 + \alpha_0\beta_1$) are constants; α_1 and π_1 ($\beta_2 + \alpha_1\beta_1$) are the total effects of variable X_{1kit} to variable Y_{1kit} and Y_{2kit}; μ_{12} ($\mu_2 + \mu_1\beta_1$) are composites random error.

From the description of the reduced form equation above, the coefficient of direct and indirect influence of both exogenous and endogenous variables on employment opportunities (Y_{2kit}) can be identified. To prove the research hypothesis, the estimation of the direct and indirect effects will be simultaneously linear regression using the AMOS program. This research will conduct two studies each for the Western Region of Indonesia and the Eastern Region of Indonesia. The coefficient symbol of the estimation results as well as the methods and analysis tools can be restated.

V. Results and Discussion

To compare the absorption of labor in the Western Region of Indonesia and the Eastern Region of Indonesia, a simultaneous linear regression analysis was carried out which estimates the magnitude of the direct and indirect effects. In this simultaneous linear regression analysis, the endogenous variables are Investment (Y_1) and Labor Absorption (Y_2), while the exogenous variable is Wages (X_1).

The estimated results of the research can be seen in Table 1 and Table 2. The R square value of the labor absorption on both of them which is very low indicates that there are still some variables other than wages and investment affecting labor absorption. To that end, the following researchers could try to analyze the minimum wage policy in analyzing labor absorption in both the Western Region of Indonesia and the Eastern Region of Indonesia. Nevertheless, this research is still very useful to analyze and compare the role of the macroeconomic variables on the real sector and labor absorption which still very rare.

Table 1. The Estimate Results of the Western Region of Indonesia

Directions of Effect	Constanta	Regression Coefficients	*t-Statistic*	*Probability*
$x_1 \Rightarrow y_1$	11.942	1.258*	4.712	0.000
$y_1 \Rightarrow y_2$	-157.344	0.126	0.290	0.772
$x_1 \Rightarrow y_2$		13.894*	8.047	0.000
*) Significant at α = 5%; R^2y_1 = 0.100; R^2y_2 = 0.270; N = 200				

Source: Appendix

Table 2. The Etimate Results of the Eastern Region of Indonesia

Directions of Effect	Constanta	Regression Coefficients	*t-Statistic*	*Probability*
$x_1 \Rightarrow y_1$	-1.605	2.122*	6.623	0.000
$y_1 \Rightarrow y_2$	-107.943	0.210	1.363	0.173
$x_1 \Rightarrow y_2$		-1.360*	-2.093	0.036
*) Significant at α = 5%; R^2y_1 = 0.254; R^2y_2 = 0.034; N = 130				

Source: Appendix

Meanwhile, the direct effect, indirect, and the total effect of the exogenous variable (X) both in the Western Region of Indonesia and in the Eastern Region of Indonesia in this research, can be seen in Table 3. The direct effect of wages on labor absorption in the Western Region of Indonesia shows a significant and positive relationship. The indirect effect of wages on labor absorption through investment shows an insignificant relationship. The insignificant relationship is derived from a positive relationship between wages and investment which is then forwarded to the insignificant relationship between investment and labor absorption.

Furthermore, the direct effect of wages on labor absorption in the Eastern Region of Indonesia shows a significant and negative relationship. The indirect effect of wages on labor absorption through investment shows an insignificant relationship. The insignificant relationship is derived from a positive relationship between wages and investment which is then forwarded to the insignificant relationship between investment and labor absorption. Overall, the total effect of wages on labor absorption both in the Western Region of Indonesia and in the Eastern Region of Indonesia shows an insignificant relationship.

Tabel 3. Direct, Indirect, and Total Effect

Directions of Effect	Regression Coefficients of the Western Region of Indonesia			Regression Coefficients of the Eastern Region of Indonesia		
	Direct Effect	Indirect Effect	Total Effect	Direct Effect	Indirect Effect	Total Effect
$X_1 \rightarrow Y_2$ ($\pi_{1)}$	13.894*		14.053	-1.360*		-0.914
Through y_1		0.159			0.446	
$x \rightarrow y_1$	1.258*		1.258*	2.122*		2.122*
*) Significant at α = 5%						

Source: Appendix

The results showed that the increase in wages in the Western Region of Indonesia will have a positive impact on labor absorption. This shows that increased wages do not affect the costs due to this increase in wages as an incentive that can increase worker productivity. Increased productivity of course can increase output which can create the expansion of production capacity. Increased production capacity will require additional manpower. So that increased wages can increase labor absorption. Therefore, government policy in the form of determining the minimum wage has a positive and significant effect on labor dispossession. This result is not following the research before which states that increasing wages can reduce labor absorption [15].

Furthermore, the increase in wages in the Eastern Region of Indonesia causes a reduction in labor absorption. This is because wages are seen as a burden and an increase in wages cannot create an increase in productivity. The wage which is the price of labor is a production factor that can affect production costs. Producers will respond to an increase in production costs due to increased wages by not opening new job vacancies which have an impact on reducing labor absorption. Therefore, government policy in the form of setting the minimum wage has a negative and significant effect on labor absorption. This result is consistent with research before which states that wages are seen as burdens so that increased wages can reduce the absorption of labor [16].

Then both in the Western Region of Indonesia and in the Eastern Region of Indonesia, the increased wages can increase investment due to an increasingly productive workforce which can create a greater output. This is of course due to the increase in wages as an incentive for workers to improve their quality through the additional income they receive. However, the investment cannot affect the absorption of labor, which causes the size of the investment value cannot increase the addition of new workers who work. Therefore, the minimum wage setting policy in both the Western Region of Indonesia and the Eastern Region of Indonesia has no significant effect on employment through investment. This result is not following the research before which states that there is a significant relationship between wages and labor absorption [17].

Observations both on the direct and indirect effects of wages on labor absorption show that, on the whole, the increase in wages both in the Western Region of Indonesia and in the Eastern Region of Indonesia can directly affect labor absorption. The implication is that the determination of the minimum wage policy in the two regions requires different treatment. In the Western Region of Indonesia, wages become an incentive that can increase labor output. While in the Eastern Region of Indonesia, high wages will reduce the amount of labor absorption while in the Eastern Region of Indonesia. So as in the Western Region of Indonesia, the government can increase the minimum wage without worrying about having an impact on the low absorption of labor. In another case, the Eastern Region of Indonesia, the government needs to be careful about the minimum wage policy that is too high because producers will respond to this policy by reducing the use of labor.

VI. Conclusion

Increased wages at both the Western Region of Indonesia and the Eastern Region of Indonesia can directly affect labor absorption. The implication is that the determination of the minimum wage policy in the two regions requires different treatment which in the Western Region of Indonesia wages becomes an incentive that can increase labor output so that the minimum wage continues to increase while in the Eastern Region of Indonesia high wages will reduce the amount of labor absorption.

In the Western Region of Indonesia, the government can increase the minimum wage without worrying about having an impact on the low absorption of labor. In another case in the Eastern Region of Indonesia, the government needs to be careful about the minimum wage policy that is too high, because producers will respond to this policy by reducing the use of labor.

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Appendix

AMOS Results of the Western Region of Indonesia
Estimates (Group number 1 - Default model)
Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Y1	<---	X1	1.258	.267	4.712	***	par_1
Y1	<---	u1	1.081	.054	19.970	***	par_4
Y2	<---	X1	13.894	1.727	8.047	***	par_2
Y2	<---	Y1	.126	.435	.290	.772	par_3
Y2	<---	u2	6.635	.332	19.970	***	par_5

Intercepts: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Y1	11.942	3.794	3.148	.002	par_7
Y2	-157.344	23.852	-6.597	***	par_8

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
Y1	.100
Y2	.270

Matrices (Group number 1 - Default model)
Factor Score Weights (Group number 1 - Default model)

Total Effects (Group nmber 1 - Default model)

	X1	Y1
Y1	1.258	.000
Y2	14.052	.126

Direct Effects (Group number 1 - Default model)

	X1	Y1
Y1	1.258	.000
Y2	13.894	.126

Indirect Effects (Group number 1 - Default model)

	X1	Y1
Y1	.000	.000
Y2	.158	.000

AMOS Results of the Eastern Region of Indonesia
Estimates (Group number 1 - Default model)
Scalar Estimates (Group number 1 - Default model)
Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Y1	<---	X1	2.122	.320	6.623	***	par_1
Y1	<---	u1	.975	.061	16.062	***	par_4
Y2	<---	X1	-1.360	.650	-2.093	.036	par_2
Y2	<---	Y1	.210	.154	1.363	.173	par_3
Y2	<---	u2	1.708	.106	16.062	***	par_5

Intercepts: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Y1	-1.605	4.562	-.352	.725	par_7
Y2	107.943	7.994	13.503	***	par_8

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
Y1	.254
Y2	.034

Matrices (Group number 1 - Default model)
Factor Score Weights (Group number 1 - Default model)

Total Effects (Group number 1 - Default model)

	X1	Y1
Y1	2.122	.000
Y2	-.914	.210

Direct Effects (Group number 1 - Default model)

	X1	Y1
Y1	2.122	.000
Y2	-1.360	.210

Indirect Effects (Group number 1 - Default model)

	X1	Y1
Y1	.000	.000
Y2	.446	.000

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