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THE ABSORPTION OF NON-AGRICULTURAL LABOR IN INDONESIA

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ABSTRACT

This study aims to analyze the effect of education, private investment and government expenditure on the absorption of non-agricultural labor both directly and indirectly through changes in economic structure.The data analysis technique used to discuss the problem in this study is the Structural Model analysis. The results show that education and private investment have a direct effect on the absorption of non-agricultural labor but have no effect through changes in economic structure. While government spending does not have a direct effect on the absorption of non-agricultural labor but has an indirect effect through changes in economic structure.

I. INTRODUCTION

Labor is not only seen as a part of creating output, but also how the quality of the workforce interacts with other production factors to create added value (productivity). The more productive the workforce will have an impact on increasing the added value produced. Labor is one of the most important resources in promoting the growth and economic progress of a country. A process of developing the role of labor is crucial to the development in a country. According to Hidayat, et al (2017), labor as one of the economic factors has a vital role, it is usually said that labor empowers and applies other factors to achieve planned goals.

The economic sector will experience changes during the development process. Likewise, the percentage of the population working in various sectors of the economy will also change. And this can not be separated from the development of human resources and employment. Absorption of labor is an important problem in regional development. Labor can be used as a benchmark for the success of development in a region, meaning that the absorption of labor supports the success of overall regional development. So that employment conditions can also describe the economic and social conditions, even the level of welfare of the population in a region in a certain period of time (Ganie, 2017).

Based on various empirical studies, we can observe several phenomena that always appear in the process of structural change. Where in general it can be said that transformation is usually characterized by a shift and shift from primary production sector activities (agriculture, mining) to the secondary sector (manufacturing industry) and to the tertiary sector (services) (Louhenapessy, 2014).Whereas Kuznet in Todaro (2006) states that changes in economic structure can be seen from two sides, namely changes in the relative contribution of a sector in the formation of Gross National Product (PNB) or changes in the growth of employment in economic sectors towards the total growth of national employment.

The discourse of economic growth, employment opportunities, and community welfare is often associated with investment as the main driver. Investment itself is influenced by foreign and domestic investment. Investment in the region consists of government investment and private investment. Investment from the government sector can come from capital expenditure. Government investment is carried out to provide public goods. The higher the investment in the non-agricultural sectors, the more employment opportunities are created. According to Mariana, et al. (2014) investment that continues to increase causes a significant shift from the agricultural sector to the industrial sector and services so that it influences changes in the economic structure. Investment is related to the growth of the industrial sector, investment is expenditure to increase or maintain capital stock. Stocks of capital goods consist of factories, machines, offices and other durable products used in the production process. Capital goods which also include residential housing and inventory are components that will add expenses that are investments. So that investment will affect the growth of the industrial sector.

Human resources also determine the speed and extent of productive transformation in the form of structural changes and the absorption of new technologies and new ways of production can be achieved. An important dimension of people's ability to achieve sustainable economic development is in human resources. Improving education, developing science, expanding specialization and improving organizational production are important factors that will improve the quality and efficiency of the factors of production and ultimately create economic development. Education can create views and habits that are more modern or rational, and this has a very large role to determine the economic progress of a society (Sukirno, 2006).

A low level of education reflects the quality of human capital that does not yet have maximum capability. The low level of education of the population working specifically in the industrial or non-agricultural sectors will cause low quantity and quality of output produced by producers and will directly have an impact on the low absorption of labor in the sector. The non-agricultural sector as a sector that has a very large role in contributing to true economic growth must also be followed by the absorption of a large workforce for the workforce which increases every year especially with the continued increase in the workforce with education above the average.

II. Theoretical review

According to the Central Bureau of Statistics, which is classified as a workforce, the population is within the working age limit. Limitation of working age varies from country to country. In Indonesia alone the working age population is a population aged 15 years and over. The concept and definition used in employment data collection by the Central Statistics Agency is The Labor Force Concept, which was suggested by The International Labor Organization (ILO). In Mulyadi (2008) labor is a population in working age (aged 15 to 64 years) or the total population in a country that can produce goods and services if there is a demand for their workforce, and if they want to participate in the activity.

Classical theory assumes that humans are the main production factor that determines the prosperity of nations. Nature (land) has no meaning if there are no smart human resources to manage it so that it is beneficial for life. In this case, the classical theory of Adam Smith also sees that effective allocation of human resources is the driver of economic growth. After the economy grew, new (physical) capital accumulation began to be needed to keep the economy growing. In other words, effective allocation of human resources is a necessary condition for economic growth (Mulyadi, 2008). The increasing number of population has brought about a consequence of the increasing number of workforce. This means the greater the number of people who are looking for work or unemployed. In order to achieve a balanced state, they should all be accommodated in a job that matches their desires and skills. This will have the consequence that the economy must always provide jobs for the new workforce. Job opportunities can be created if there is a demand for labor in the labor market so that in other words employment opportunities also show demand for labor. The

expansion of employment opportunities is an effort to develop shelter sectors with low productivity employment opportunities. Efforts to expand employment opportunities are inseparable from factors such as growth in the population and workforce, economic growth, level of labor productivity, or policy regarding the expansion of employment opportunities themselves.

Demand for labor is the relationship between the number of workers and the level of wages as the price of labor demand desired by employers to be employed. Employer demand for labor is different from consumer demand for goods and services. Employers hire someone because they help produce goods and services that will be offered to the public as consumers. In other words, the increase in labor needed by employers depends on the increase in demand for goods and services by consumers so that the demand for employers for labor is also called derived demand, namely demand that occurs due to other requests such as demand for goods and services.

Absorption of labor basically depends on how much demand for labor is needed. The size of the demand elasticity of labor is influenced by factors that allow substitution of labor with other production factors. The elasticity of demand for goods produced and the supply elasticity of other complementary production factors. The less likely it is to substitute capital for labor, the smaller the elasticity of labor demand. The greater the elasticity of demand for manufactured goods, the greater the elasticity of labor demand and the greater the elasticity of supply of complementary factors in production, the greater the elasticity of demand for employment. Payaman simanjuntak (1985) in (Buchari 2006) states that employment is a derived demand from labor demand. that is, labor demand is derived from the output produced. In other words functionally The marginal product of labor is a derivative of the output produced. The endogenous growth theory proposed by Romer stated that the factors that can increase output are human capital, physical capital, research and development.

Education

In general, improving the quality of human resources can be achieved through education or based on experience. However, increasing human resources through experience requires a relatively long time compared to education. So that one of the more representative indicators for measuring the quality of human resources is through the level of education that has been achieved.According to Silaen and Astrit (2015), workers who are trained in sufficient education can become a big capital for the development of an area through an industrial sector that can be developed. Education as the preparation of the workforce is defined as the activity of guiding students so that they have basic provisions for work. Basic provisioning is in the form of attitudes, knowledge and work skills in the prospective candidates. Mankiw in Buchari (2016) has a special theory about the workforce. Manufacturing companies produce goods and services that will later be consumed and investments in physical capital. Colleges, labor force, and manufacturing industry companies have mutually beneficial relationships. The workforce that has education up to the university stage and works in the manufacturing industry will have the capability to develop the manufacturing industry by utilizing science as a means to increase output. Increased output will have an impact on increasing employment.

Private investment

According to Samuwelson and Northaus (1996) investment is an important thing in economic development because it is needed as a supporting factor in increasing the production process. Investment encourages capital accumulation. The addition of building stock and other equipment will increase a nation's potential output and stimulate economic growth for the long term. Almost all economists emphasize the importance of investment (investment) as one of the main factors and determinants of economic growth (Sari, et al, 2016). Investment can also bring new technology and other knowledge that is useful in domestic development. Investment has a strong network with global financial institutions, so it does not depend on funds and banking in Indonesia (Silaen and Astrid 2015).

One of the factors that led to changes in the economic structure was due to the reallocation of investment funds and other key resources, including technology and labor or human resources from one sector to another. This reallocation can occur due to differences in real productivity or income between sectors, the existence of poverty in one sector or because of government policies that benefit certain sectors, such as industrialization policies and foreign trade policies that prioritize development or output growth in the industrial sector.

Government Expenditures

The fundamental requirement for economic development is the level of procurement of development capital that is balanced with population growth. Increased infrastructure and improvements by local governments are expected to spur regional economic growth (Sitaniapessy, 2013). The role of state expenditure in economic development lies in increasing the rate of economic growth, providing employment opportunities, increasing income and living standards, decreasing income and prosperity gaps, in encouraging private initiatives and businesses (Jhingan, 2013).

In Harijono and I made (2013), government expenditure is a relatively small component compared to other components in calculating economic growth. However, government spending has strategic social political effects as a function of allocation, distribution and stabilization. In addition, government spending also has a multiplier effect on the real macro economy in short-term movements of output and employment. Capital expenditures on the government include being used to improve physical infrastructure, of course both directly and indirectly will absorb labor and reduce unemployment.

Government expenditure can increase the output produced by an economic sector. In addition, it can also increase people's income because government spending will be a public income that will drive aggregate demand. Because of the increase in aggre-

gate demand,thus encouraging producers to increase production output. For this reason, producers need additional production inputs, one of which is labor, so that new employment opportunities will be created. Thus, an increase in government spending will add new employment opportunities to the community.

Changes in Economic Structure

According to Todaro (2003), that economic development basically has a basic dimension, namely growth, poverty reduction, economic transformation or transformation and sustainable development from an agrarian society to an industrial society. In order for economic growth to continue, it is expected that changes or changes in the economic structure are expected (Hukom, 2014).Szirmai (2012) has conducted research on around 67 developing countries and has obtained results that due to changes in economic structure, industrial sectors have become the engine of economic growth for developing countries. Landesmann and Roman (2019) also say that the global economy has undergone very rapid structural changes. A very impressive development process in a number of developing countries has driven a strong shift in the share of global trade.

In Harsono (2013) also states that one model of economic development is through a structural change approach focusing its attention on the mechanism of economic growth which will lead to changes in economic structure, specifically the transformation of the subsistence agricultural sector to the industrial sector. This development approach believes that growth can ultimately create equitable development through changes in consumption and investment and allocation of employment.

The theory of changes in economic structure, which is from Hollis Chenery, focuses on changing economic structures in developing countries which have undergone a transformation from agriculture to the industrial sector as the main driver of growth. Chenery's research shows that the increase in per capita has changed consumption patterns from food and basic needs to manufacturing and service products, physical and human capital accumulation, urban and industrial development, declining population growth, small family size, economic sectors dominated by non-primary sectors especially industry.

III. Research methods

The type of data used in this study is quantitative data. The data analysis technique used in this study is Structural Model analysis. Structural models are models that show structural relationships between variables. Complex relationships can be built between one or several dependent variables with one or several independent variables ...

To see the relationship between these variables can be formulated as follows:

$$Y_{1it} = f(X_{1\,it}, X_{2\,it,}\ X_{3\,it}) \quad \text{..... (1)}$$

$$Y_{2\,it} = f(X_{1\,it}, X_{2\,it}, X_{3\,it}, Y_{1\,it}) \quad \text{..... (2)}$$

With the equation as follows:

$$Y_{1\,it} = \alpha_0 + \alpha_1 X_{1\,it} + \alpha_2 X_{2\,it} + \alpha_3 X_{3\,it} + \mu_1 \quad \text{..... (3)}$$

$$Y_{2\,it} = \beta_0 + \beta_1\ X_{1\,it} + \beta_2 X_{2\,it} + \beta_3 X_{3\,it} + \beta_4 Y_{1\,it} + \mu_2 \quad \text{..... (4)}$$

Substitute equation (3) to equation (4)

$$Y_{2\,it} = \beta_0 + \beta_1\ X_{1\,it} + \beta_2 X_{2\,it} + \beta_3 X_{3\,it} + \beta_4 (\alpha_0 + \alpha_1 X_{1\,it} + \alpha_2 X_{2\,it} + \alpha_3 X_{3\,it} + \mu_1) + \mu_2$$

$$Y_{2\,it} = \beta_0 + \beta_1\ X_{1\,it} + \beta_2 X_{2\,it} + \beta_3 X_{3\,it} + \beta_4 \alpha_0 + \beta_4 \alpha_1 X_{1\,it} + \beta_4 \alpha_2 X_{2\,it} + \beta_4 \alpha_3 X_{3\,it} + \beta_4 \mu_1 + \mu_2$$

$$Y_{2\,it} = (\beta_0 + \beta_4 \alpha_0) + (\beta_1 + \beta_4\ \alpha_1)\ X_{1\,it} + (\beta_2 + \beta_4 \alpha_2) X_{2\,it} + (\beta_3 + \beta_4 \alpha_3)\ X_{3\,it} + \beta_4 \mu_1 + \mu_2$$

From the above equation can be simplified to be:

$$Y_{2\,it} = \theta_0 + \theta_1 X_{1\,it} + \theta_2 X_{2\,it} + \theta_3 X_{3\,it} + \mu_3 \quad \text{..... (5)}$$

Where:

Y2 = Absorption of non-agricultural workers
Y1 = Change in Economic Structure
X1 = Education
X2 = Private Investment
X3 = Government Expenditures
α0, ß0 = Constants
μ1, μ2, μ3 = error term
i = cross section
t = time series

IV. Results and Discussion

The following is the result of analyzing the relationship of variables directly:

Table 1. Direct variable relationships:

Variable Relationship	Coefficient	Probability	Information
$X_1 \rightarrow Y_1$	2.059	0.002	Significant
$X_2 \rightarrow Y_1$	0.151	0.000	Significant
$X_3 \rightarrow Y_1$	0.100	0.263	Not Significant
$X_1 \rightarrow Y_2$	7.169	0.000	Significant
$X_2 \rightarrow Y_2$	0.164	0.001	Significant
$X_3 \rightarrow Y_2$	-0.140	0.176	Not Significant

Source: SPSS (data processed)

The results of educational estimation of changes in economic structure amounted to 2,059 with a probability of 0.002 at a significance level of 1 percent. This shows that education has a positive effect on changes in economic structure, where every 1-year increase in the level of workforce education will increase economic structure changes by 2,059 percent.

The estimation of private investment in changes in economic structure is 0.151 with a probability of 0.000 at a significance level of 1 percent. This shows that private investment has a positive effect on changes in the economic structure, where every 1 year increase in the level of employment will increase economic structure changes by 0.151 percent.

The estimation results of government expenditures on changes in economic structure are 0.100 with a probability of 0. This shows that government spending does not affect changes in economic structure, meaning that any increase or decrease in the amount of government expenditure does not have an impact on changes in economic structure.

The results of the educational estimation of labor absorption are 7,169 with a probability of 0,000 at a significance level of 1 percent. This shows that education has a positive effect on employment, where every 1 year increase in the level of workforce education will increase employment by 7.161 percent.

The estimation of private investment in employment is 0.164 with a probability of 0.001 at a significance level of 1 percent. This shows that private investment has a positive effect on employment, where every 1 trillion rupiah increase in private investment will increase employment by 0.164 percent.

The estimation results of government expenditures on employment are equal to -0.141 with a probability of 0.176. This shows that government expenditure does not affect labor absorption, meaning that any increase or decrease in the amount of government expenditure does not have an impact on employment.

The regression results of indirect influences between variables can be seen in the following table:

Table 2 Results of Analysis of Indirect Variable Relationships

Variable Relationships	Direct Reationship	Parameters of Indirect Relations	Indirect Effect Coefficient	Informaion
$X_1 \rightarrow Y_1 \rightarrow Y_2$	7.169^{S}	$\alpha_1 . \beta_4$	1.29^{NS}	Tidak Signifikan
$X_2 \rightarrow Y_1 \rightarrow Y_2$	0.164^{S}	$\alpha_2 . \beta_4$	0.095^{NS}	Tidak Signifikan
$X_3 \rightarrow Y_1 \rightarrow Y_2$	-0.140^{NS}	$\alpha_3 . \beta_4$	0.626^{S}	Signifikan

Source: SPSS (data processed)

Based on table 2 above it is shown that:

1. Education does not affect the absorption of labor in the non-agricultural sector through changes in economic structure.
2. Private investment does not affect the absorption of non-agricultural sector labor through changes in economic structure.
3. Government expenditure has a positive and significant effect on the absorption of labor in the non-agricultural sector through changes in economic structure.

Effects of Education on Absorption of Labor

Based on the estimation results in table.2 education has a coefficient of 7.169 with a probability of 0.000. This shows that education has a positive effect on employment in the non-agricultural sector. Every one-year increase in the education level of the workforce will increase employment in the non-agricultural sector by 7.169 percent.

According to Classical economist John Stuart Mill,the level of development of knowledge at any given time functions as a factor that determines the level of progress of industrial activities at that time. Education can create views and habits that are more modern or rational, and this has a very large role to determine the economic progress of a society (Sukirno, 2006). This is also in line with Buchari's (2016) research in his research stating that the level of education has a significant positive effect on the absorption of industrial sector laborers in the form of invoices. Buchari also added that higher education graduate workers have contributed to the

employment of manufacturing industry sectors on the island of Sumatra. Improvement of graduate competencies must be further enhanced to suit labor market needs.

The Effect of Private Investment on Labor Absorption

Based on the estimation results in table 2, private investment has a coefficient of 0.164 with a probability of 0.001. This shows that private investment has a positive effect on employment in the non-agricultural sector. Any increase in private investment of one trillion rupiah will increase employment in the non-agricultural sector by 0.164 percent.

According to Samuwelson and Northaus (1996), investment is an important thing in economic development because it is needed as a supporting factor in improving the production process. This result is also in line with Romdhoni's (2017) research examining the effect of investment on employment in Central Java. The result states that investment has a positive effect on employment. In other words, if investment increases, the opportunity for employment is also increased. The higher the investment in the non-agricultural sectors, the more employment opportunities are created.

The Effect of Government Expenditures on Labor Absorption

Based on the estimation results in table 2, government expenditure has a coefficient of 0.140 for employment with a probability of 0.176. This shows that government spending does not have an influence on employment in the non-agricultural sector, meaning that any increase or decrease of one trillion rupiahs in the amount of government expenditure does not have an impact on employment in the non-agricultural sector. The magnitude of the effect of goods expenditure and capital expenditure on economic growth is apparently not strong enough to give a multiplier effect on employment opportunities. This indicates that the majority of government investment is used to build office buildings and facilities as well as finance the operations of government activities which have a small multiplier effect on employment. On the other hand, some government spending used to build public facilities is more inclined to support capital-intensive sectors. Therefore, the government must direct its expenditure towards the construction of public facilities that support labor-intensive sectors. Hadiyanti (2013) also in his research stated that expenditure had a negative effect on employment.

In the report of the Institute for Development of Economics and Finance (INDEF), it was also suggested that the unemployment rate rose from 4.01 percent in 2017 to 4.04 percent in 2018, indicating that village funds also had no effect on job creation. In the five-year period of this study the impact of government spending on each province is building various kinds of public needs for the sustainability of the regional economy, but this is still in the stage of development, so that it has not contributed significantly to employment.

The Effect of Education on Absorption of Labor Through Changes in Economic Structure

Based on the regression results table 2 shows the indirect coefficient value of education on labor absorption through changes in economic structure of 1.29 where the indirect coefficient is smaller than the direct coefficient of education which means that education does not affect employment through changes in economic structure. Every one year increase or decrease in education level does not affect the absorption of non-agricultural sector labor through changes in economic structure. According to Buchari (2016), some investors focus on employee competencies so that investors are more interested in investing in a place that has the quality of qualified human resources. The low level of education of the population working specifically in the industrial or non-agricultural sectors will cause low quantity and quality of output produced by producers and will directly have an impact on the low absorption of labor in the sector. This also relates to the problem of link and match between the workforce produced by the world of education and the demand for labor by the industrial world. This situation clearly exacerbates the excess of labor supply in Indonesia which directly results in relatively low labor capacity / competitiveness which further weakens power competitiveness of the business world, especially the industrial world as one of the biggest contributing sectors in the country's economy.

The Effect of Private Investment on Labor Absorption Through Changes in Economic Structure

Based on the regression results table 2 shows the coefficient value of indirect investment private investment in employment through changes in economic structure of 0.095 where the indirect coefficient is smaller than the direct coefficient of self-investment which means that private investment does not affect employment through changes in economic structure. Any increase or decrease of one trillion rupiah of private investment does not affect the absorption of labor in the non-agricultural sector through changes in economic structure. This indicates that private investment has not been able to move the economy which can increase economic growth to be higher than the growth of private investment, which in turn encourages the shift of the agricultural sector to the non-agricultural sector or industrialization so that it does not affect labor absorption.

The focus of investors is only on sectors that are capital intensive, so that the effect is not significant on employment opportunities. The government must pay more attention to policies in the investment sector so that it directs investments towards sectors that absorb more labor. The results of this study are in accordance with what was stated in the 2005 Cative Investment Climate Sub-Working Group (CGI) which states that investment in Indonesia is generally weak, despite supporting economic growth but not strong enough to provide employment opportunities. This is because investment in large industries invests heavily in capital rather than investing in labor intensive industries, so it does not use HR much because it uses more machines.

Effect of Government Expenditures on Absorption of Labor Through Changes in Economic Structure

Based on the regression table 2 shows the coefficient value of the indirect relationship of government expenditure on employment through changes in economic structure of 0.626 where the indirect coefficient is greater than the direct coefficient of government expenditure which means that government spending influences employment through changes in economic structure. Every increase of one trillion rupiah in government spending will increase employment by 0.626 percent through changes in economic structure. Conversely, every decrease of one trillion rupiah in government spending will reduce employment by 0.626 percent through changes in economic structure. According to Sitaniapessy (2013), increased infrastructure and improvements by local governments are expected to spur economic growth. Government expenditure can increase the output produced by an economic sector. In addition, it can also increase people's income because government spending will be a public income that will drive aggregate demand.Because of the increase in aggregate demand, thus encouraging producers to increase production output. For this reason, producers need additional production inputs, one of which is labor, so that new employment opportunities will be created. Thus, an increase in government spending will add new employment opportunities to the community.

Conclusion

The conclusion of the results of this study is that education directly has a positive effect on the absorption of non-agricultural labor but does not affect the absorption of non-agricultural labor through changes in economic structure. Private investment directly has a positive effect on employment but does not affect the absorption of non-agricultural labor through changes in economic structure. While direct government output does not affect the absorption of non-agricultural labor but has a positive effect on employment through changes in economic structure. The government should strive to make the investment climate for labor-intensive sectors better and encourage industries in the labor-intensive sector to become more competitive so investors are interested in investing in labor-intensive sectors and employment can be increased in Indonesia.

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