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## The Absorption Employment of Industrial Sector Workers and Influencing Factors

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### Abstract

The title of this paper is the absorption of industrial labor and the factors that influence it. The variable used Education Level, Foreign direct investment, Population Growth and Wages as independent variables and Industrial Labor as dependent variables. The purpose of the study is to see the macroeconomic growth that a decade has been able to reduce the unemployment rate and increase employment in Indonesia. There are two million Indonesians who enter the world of work every year, this is a labor market that can stimulate the creation of new jobs and absorption in the workforce that continues to grow every year in the industrial sector. Research results the level of education, population growth and wages are significant to the absorption of industrial labor, while FDI is not significant. The level of education needs attention considering that the young unemployment of most of those who have just graduated from college is one of the main concerns and needs rapid action, while the population growth rate makes a value of output and input, in contrast to wages as a community income, if there is an increase in the value of wages then the quality labor absorbed will increase. The absorption of industrial labor is influenced by the 3 (three) variables mentioned above, therefore these three variables become important and need special attention are the level of education, population growth, and wages.

**Keywords:** Education level, foreign direct investment, population growth, wages and Industrial sector labor.

### 1. Introduction

Labor conditions are characterized by high unemployment, low wages and very fast population growth, in recent decades, there has been a very rapid development of industrial technology and the internet that has encouraged the industrial revolution 4.0 so that it is the most crucial dynamic factor and needs to be addressed immediately importantly, because population factors affect and determine the direction of a country's future development and the development of industrial technology. The development of this technology is not only opening up interactions widely but also disrupting various areas of human life. Population growth is a key issue in economic development. The effect of this population growth can be seen in the procurement of basic necessities in total must be supplemented, especially the procurement of food and result in an increase in the labor force. If the population grows equal to the national income, then the per capita income does not increase. The phenomenon of disruption has a major impact on changes in various fields. Disruption has not only changed the business, but the

fundamentals of the business. Starting from the cost structure all the way to the culture, and even the ideology of an industry. Thus, one of the consequences of the industrial revolution 4.0 was the birth of the digitization process in all fields. This is also what makes the paradigm about economics and marketing change.

Production, distribution, and marketing must follow the movement of digitizing the world economy that continues to grow. Of course, change brings something new that benefits economic factors. Currently, economic factors are all moving towards economic digitization by emphasizing the power of technology and information. The wide reach and significant speed are the advantages of digitizing the economy. This industrial revolution will become a general pattern of global economic development in the future. Like two sides to a coin, this new era full of disruption presents both challenges and opportunities for the fulfilment of the sustainable development goals.

On the one hand, implementation encourages productivity and efficiency in the production of products and services. In addition, this new era provides convenience and comfort for consumers. But on the other hand disruption has the potential to eliminate certain types of work or increase the unemployment rate (Lubbock et al., 2022). The arrival of the Industrial Revolution 4.0 is a new period with profound and transformative changes. The transformation of Industry 4.0 is accelerating at an exponential, non-linear pace. Therefore, the world needs to respond to Industry 4.0 with an integrated and comprehensive approach, involving all stakeholders, from the public and private sectors to academia and civil society. For this reason, the topic of labor in the era of the industrial revolution 4.0 and how it affects the achievement of the sustainable economic development goals, is still a very important issue to be discussed in order to find the right formula in making the right policy for policy makers.

Between 2011 and 2015 a period of slowdown in economic growth occurred, with the growth GDP falling below 5.0 percent, a slowdown of concern, although almost all countries would have wanted to with a growth rate at the level of 5 percent, the concern in the case of Indonesia is that growth below 5 percent per year fails to produce enough job opportunities for a very large workforce a lot in Indonesia. In addition, Indonesia will have difficulty avoiding the middle income situation, if it is not able to secure an acceleration of economic growth above 5 percent. This analysis discusses the performance of Indonesia's economy as the country with the largest economy in Southeast Asia. This condition is included in the economic slowdown that occurred in the 2010-2015 period, then after the end of the commodity boom era, then entered the period of the economic growth acceleration process that occurred in the 2015-2019 period, but there was a decline in economic growth due to the global crisis caused by the impact of the corona virus (COVID-19).

If you look at the golden of the new order government, economic development is able to add many new jobs in Indonesia, thereby reducing the national unemployment rate. The sectors that mainly experienced an increase in labor as a share of the total number of workers were the industrial and service sectors while the agricultural sector decreased in the 1980s by about 55 percent of the Indonesian labor population working in agriculture, but today this figure is reduced to below 40 percent. However, the Asian pandemic that occurred in the late 1990s has temporarily reduced Indonesia's economic development, causing the unemployment rate in

Indonesia to rise to more than 20 percent. The number of workers who have to work below their ability level is recorded to have increased, while many workers who want to have a full-time job, can only get a part-time job.

Although Indonesia has experienced strong macroeconomic growth since 2000 and Indonesia has recovered from the crisis monetar at that time, the informal sector both in cities and villages until now still has a big role in the Indonesian economy. Although it is rather difficult to determine the exact number, it is estimated that around 55 to 65 percent of jobs in Indonesia are informal jobs. Currently about 80 percent of those informal jobs are concentrated in rural areas, mainly in the construction and agricultural sectors. Being employed in the informal sector carries certain risks because informal sector workers usually have lower and unstable incomes, they do not have access to basic protections and services as labor.

A total population of about 260 million people, Indonesia is among the fourth most populous countries in the world after China, India and the United States. Furthermore, the country also has a young population because about half of Indonesia's total population is under the age of 30. If the two factors are combined, the indication is that Indonesia is a country that has a large labor force, which will develop to be even greater in the future, thus emphasizing the importance of job creation in south East Asia's largest economy. (Ratnasih, 2015)

The increase in national income will increase aggregate demand, there by encouraging an even greater increase in output. The increase in output will encourage an increase in labor demand so that employment increases. Increased employment will reduce unemployment and increase people's household incomes, resulting in increased economic growth (Garza-Rodriguez et al., 2016). Mobility can be a stepping stone for workers to be able to get out of poverty can have a positive impact on encouraging or negatively hindering the mobility of workers between sectors. In addition, human resources is something that cannot be separated from the state of the business world or from the state of work that is full of competition. The role of motivation, (Muringani et al., 2021) social environment and work experience which will later become one important role of work encouragement for the workforce itself.

## 2. Theory

Various studies on development show that the open and covert unemployment rate in some developing canyons is very high. Seasonal unemployment is often a serious situation. Besides, another very important part of the situation of the accused in developing countries is the very rapid rate of increase in the population and this is what causes the unemployment problem faced by the Country to get worse and worse. The growing industry in Indonesia, the more it shows that the Indonesian economy is also able to innovate and compete with other countries. It also shows that the economy in Indonesia is one step ahead.

In the introduction to his analysis Lewis stated the objectives of the theory regarding the development process specifically reserved for states facing the problem of overwork. He expressed his dissatisfaction with the theory that developed after the days of classical economists. The economist who made the analysis between the 18th century and the 19th century section was the Neo-classical theory and the general Theory Keynes, because the two theories did not correspond to the state of the developing State. Neo-classical analysis departs

from the view that the supply of labor in the market is not excessive, whereas the analysis of Keynes's theory departs from the assumption that not only there is an excess of labor supply, but also that which is available and the capacity to produce is unlimited in quantity. This situation is contrary to the circumstances contained in the State of The State. Lewis considers that in many developing countries there is an excess of labor, but instead faces the problem of lack of capital and the breadth of unused land is very limited. (Headey & Hodge, 2009)

Global developments also affect the economy. Creativity is needed in the era of globalization like today. This is due to the increasing and fierce competition among economic actors. Entering the world of work certainly requires education that is in accordance with the ability to enter the world of work, as well as workers who compete a lot with foreign workers in Indonesia. Indonesia itself has 14 types of industries that can be categorized <sup>1</sup> as places of employment that can produce and grow the economy of the Indonesian people. Education is often interpreted as <sup>1</sup> human effort to cultivate his personality in accordance with the values in society and culture. Furthermore, education is defined as an effort carried out by a person or group of other people in order to become an adult or reach a higher level of life or livelihood in a mental sense.

According to education, it has the task of preparing human (Basrowi, 2019) resources for development. The rush of development steps is always pursued in rhythm with the demands of the times, which the <sup>14</sup> cell gives rise to new problems that have never been thought of before. The high average <sup>4</sup> level of public education is very important for the nation's readiness to face global challenges in the future. A higher level of education will make it easier for a person or society to absorb information and implement it in daily behaviors and lifestyles, especially in terms of <sup>14</sup> health. The level of formal education forms a value for a person especially in accepting the novelty The level of education is a stage of education that is established based on the level of development of the learner, the goals to be achieved and the will power developed. The level of education affects changes in attitudes and healthy living behaviors. (Ichwanto et al., 2021)

Furthermore, Foreign Direct Investment is an investment that is still needed for capital from foreign parties. FDI is not much different from foreign investment which is often called FDI. In Indonesia itself until now the amount of foreign investment is still quite high, which is around 63.42% of the total existing investment. This fact indicates that FDI still dominates investment in Indonesia. This FDI is usually carried out by investors from a country outside Indonesia who have an interest in developing existing businesses in this country through the provision of capital. (Ratnasih & Zulher, 2021)

<sup>5</sup> In addition, Population Growth is a change in population at any time, and can be calculated as a change in the number of individuals in a population using per unit time for measurement. The term population growth refers to all species, but it always refers to humans, and is often used informally for demographic designations of population growth value, and is used to refer to there is a world population growth. Many thinkers put forward their opinions and thoughts about population growth. This is because population growth is important in a state order. Each country certainly has different needs and capacities because of this population growth (Headey & Hodge, 2009). Malthus, the idea of population growth is simply where a reproduction is an

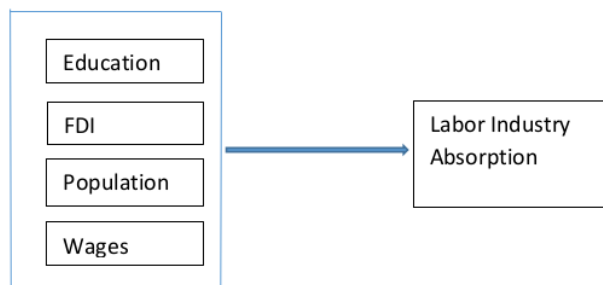


attempt to replace a society or person who has died due to a relatively high mortality rate. Some views on population before Malthusian theory and misalignment in practice before and after the time of Malthus.

The determination of the level of wages is most important for the organization because wages are often the only cost of the largest enterprise. The cost of wages is included in the calculation of the cost of production of goods. It is also important for employees because wages are used to fulfil their lives by determining status in society. Wages are given as a form of fair and decent repayment given to the workers for their services in achieving the goals of the organization. Wages are paid to workers based on working hours, the amount of goods produced or the amount of services provided. If there are other factors, it can change, and if there is still an excess in the number of workers, the level of wages in the industrial sector does not change. The amount of wage level in the subsistence sector, that is, the wage that allows workers and their families to maintain their lives in the sector. As long as the amount or value of the marginal product of a labor force in the industrial sector is still greater than the wage level of that sector, the amount of labor that will be employed in that sector will continue to be increased by employers.

### 3. Method

Stationary test with granger test assumes that the data used in the test in this study used time series data from several variables. According to the use of time series data in the study has some (Gujarati & Porter, 2009) a characteristic that this empirical study assumes that the data used underlying are stationary. One of the reasons for the emergence of autocorrelation in the use of time series data is thenon-sterility of the data. This research method is used for multiple probit regress analysis, which is used to obtain the most precise model of a collection of free variables that <sup>15</sup> considered to have an effect on response variables which are non-linear models and is used to analyze the relationship between one dependent <sup>24</sup> variable and several independent variables, with the dependent variable in the form of dummy. This study examines the probit regression model to determine the factors that influence the increase and decrease in industrial labor, (McCulloch & Rossi, 1994; Mondal & Bhat, 2022; Wilhelm & de Matos, 2013)For parameter estimation, the maximum likelihood method is used which is then continued with the Newton Raphson method. Use for parameter testing is partially used t test. With the probit model (probability unit) obtained variables that significantly affect the industrial workforce. The model of this study is as follows:



**Information:**

lnY = Absorption of Industrial Labor

lnX1=Level of education

lnX2= Foreign direct investment

lnX3= Population Growth

lnX4= Wages

Probit Analytical Model:

$$P_i = f(\beta_0 + \beta_1 x_i) = f(Z_i)$$

Normal Probability

$$Z_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon$$

The equation is as follows:

<sup>16</sup>

$$Y = \beta_0 + \beta_1 \ln x_1 + \beta_2 \ln x_2 + \beta_3 \ln x_3 + \beta_4 \ln x_4 + \varepsilon$$

$$\text{Log } \varepsilon / 1 - \varepsilon = Z_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon$$

#### 4. Result and Discussion

Hypothesis testing conducted in this study aims to find out whether <sup>22</sup> there is an influence of independent variables on dependent variables by analyzing regression. Regression analysis is used to measure the strength of the relationship between two or more variables, also showing the direction of the <sup>18</sup> relationship between dependent and independent (Sugiyono, 2017) variables to find out the independent variable X against the dependent variable Y, a multiple linear regression technique tool is used by including independent variables and dependent variables into the regression equation model. After the classical assumption test is carried out, then a multiple probit regression analysis is carried out, to find out how much influence both partially and simultaneously between variables. With the following results:

<sup>25</sup>

$$\ln Y = \beta_0 + \beta_1 \ln x_1 + \beta_2 \ln x_2 + \beta_3 \ln x_3 + \beta_4 \ln x_4 + \beta_5 \ln x_5 + \varepsilon$$

**Table 1. Estimation Results**

Variable	Estimate	SE	T test	Sig
Education (x <sub>1</sub> )	4.623	1.571448	2.137	0.0001
FDI (x <sub>2</sub> )	0,314	0.132011	0.523	0.3624
Population (x <sub>3</sub> )	5.791	0.355823	3.864	0.0001
Wages (x <sub>4</sub> )	3.219	1.406216	2.521	0.0001

Based on the estimation tests in table 1, it can be seen that all independent variables, namely the level of education, the level of population, and wages have a significant individual influence on the dependent variables of industrial labor absorption at a significance level of 5%. Meanwhile, FDI is not significant to the industrial workforce. From the table above, it is known the value of the parameter coefficient for each variable so that the best probit

regression model for factors affecting the absorption of labor industri is obtained with the following equation:

$$\hat{Y} = 2.341 + 4,623x_1 + 0.314x_2 + 5,791x_3 + 3,219x_4$$

(2,137)    (0.523)    (3.864)    (2.521)

From the regression model above, it can be interpreted that any increase in the value of education levels will have a positive influence on the level of increase in industrial labor. This applies also to the level of the population, and wages. So from the results above, it can be seen that three of the four free variables have a positive and significant influence on the absorption of industrial labor. It can be inferred in the variables education level, population growth and wages have a positive influence on the industrial manpower absorption.

The better the education, the higher the quality of the population level and adequate wages in Indonesia, the more it shows that the Indonesian economy is also able to compete with other countries. This also shows that the economy in Indonesia is one step ahead as it is today and is able to become a developed country in the world. This is because it is able to be in increasing and fierce competition among economic actors. The next stage of education is set based on the level of development of learners, the goals to be achieved and the willpower developed. The level of education affects changes in attitudes and healthy living behaviors. A higher level of education will make it easier for a person or society to absorb information and implement it in daily behavior and lifestyle, especially in terms of the ability to innovate in work.

Meanwhile, the level of education is related to economic growth, it is expected to reduce poverty, economic growth itself is an increase in the value and amount of production of goods and services calculated by a country in a certain period of time based on several indicators, for example, an increase in national income, per capita income, a greater number of workers than the number of unemployed, and a reduction in the level of poverty. Economic growth can also be interpreted as a process of continuous change towards better conditions in a country's economic conditions. The economy of a country itself can be said to grow if the economic activities of its people have a direct impact on the increase in the production of goods and services.

Furthermore, in the variable of population growth that is positive to industrial labor, that when experiencing population growth and population changes at any time can be calculated as a change in the number of individuals that leads to human resources as an important order (Mahdawi et al., 2021) to support the workforce of the industrial world. Total population that increases every year will have a positive and negative impact depending on their role as a population, the high total population cannot be said to be a driver of economic growth and it can even be the other way around because the high population does not match the expertise they have with their labor demand from the industry. Meanwhile, economic growth can be said to be a situation where a country is able to increase the results of progress accompanied by an increase in industrial labor (Bosma et al., 2018; Ratnasih, 2017), and in a certain period of time along with several other indicators will have an impact on national income, per capita income, the number of unemployed, and poverty rates.



By knowing the level of economic growth, the government can then make plans regarding state revenues and future development. Meanwhile, for business sector actors, the economic growth can be used as a basis for making product development plans and resources. Briefly, economic growth can be interpreted as the process of increasing per capita output in the long term (Lupu et al., 2022). In that sense, there are three aspects that need to be underlined, namely process, per capita output, and long-term. Growth as a process means that economic growth is not a picture of the economy at some point, but rather that economic growth is related to per capita output, meaning it must be used into ways, namely the total output of GDP and the number of inhabitants, because per capita output is the total output divided by the number of population.

Working wages are a reflection of national income in the form of money received by a laborer or employee in accordance with the amount of quality devoted to payment for the results of work guided by the agreement agreed to pay it. The better and more appropriate the issue of wages received by industrial labor (Primary et al., 2020), the more it has a good impact on society and the industry that uses that labor. Therefore the issue of wages requires important attention from policy makers (Mulya Pratomo & Setyadharma, 2020) on the issue of wages especially for industrial labor.

The variable Foreign Direct Investment (FDI) has benefits that can be obtained from foreign investment, and the benefits that will be obtained by the existence of FDI bring quite a lot of benefits both for the industry or the party who is the investor receiving the investment, although the FDI is not significant. Industrial yak tires, which at this time are unlikely to fully support nature, given their limitations, therefore, need to follow the example of developed countries that make industry the backbone of the country's economy by fostering creativity and product innovation from each businessman as an economic support.

## 5. Conclusion

- a) The level of education (X1) has an important level for the industrial workforce, the separation between high positions and low ones, because the level of education can provide a level of ability in terms of intelligence and skills of the workforce in increasing work productivity. In addition, it can support the career path of the workforce as a human resource that is able to manage and lead.
- b) Population growth (X3) increases to make a value of outputs and inputs in contributing labor to the industrial world, therefore the number of people as social capital is managed and prepared as a workforce that is ready and able to compete with foreign workers.
- c) The high level of wages (X4) adds high social value, then there will be fierce competition for high-quality labor, labor is responsible for producing high performance for industrial companies.

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