

# THE INFLUENCE OF LABOR PRODUCTIVITY, INVESTMENT, AND EDUCATION LEVEL ON EMPLOYMENT ABSORPTION IN THE INDUSTRIAL SECTOR IN GORONTALO PROVINCE

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## THE INFLUENCE OF LABOR PRODUCTIVITY, INVESTMENT, AND EDUCATION LEVEL ON EMPLOYMENT ABSORPTION IN THE INDUSTRIAL SECTOR IN GORONTALO PROVINCE

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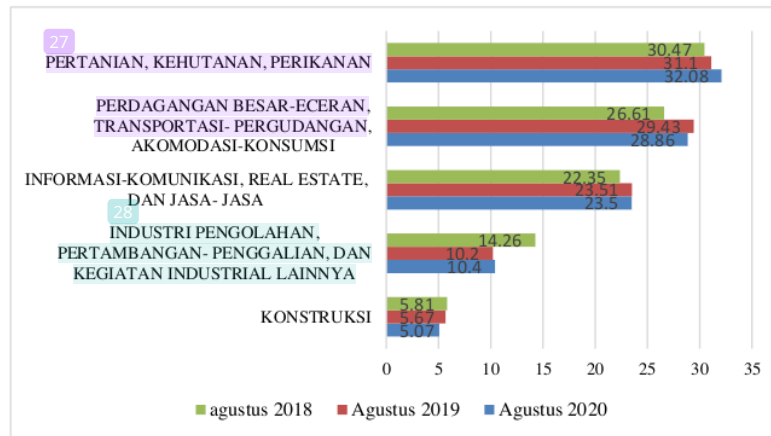
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Article history:		Abstract:
Received:	11 <sup>th</sup> June 2022	<p>This study is intended to discover the influence of labor productivity, investment, and education level on employment absorption in the industrial sector in Gorontalo Province during the period of 2016-2020. In this study, quantitative regression analysis with panel data method is used to analyze the data. Furthermore, as a tool in data processing, the Eviews 9 program is used in this study.</p> <p>The results show that (1) labor productivity has a negative and significant effect on employment in the industrial sector in Gorontalo Province, meaning that increasing labor productivity can reduce labor absorption in the industrial sector in Gorontalo Province. (2) Investment has a positive and significant impact on employment in the industrial sector in Gorontalo Province, meaning that increased investment can increase employment in the industrial sector in Gorontalo Province. (3) The level of education has a positive and insignificant effect on employment in the industrial sector in Gorontalo Province, meaning that the level of education can increase employment in the industrial sector in Gorontalo Province. (4) Labor productivity, investment and education level simultaneously have a significant effect on employment in Gorontalo Province.</p>
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### 1. INTRODUCTION

Industrialization can overcome high poverty rates, high unemployment, especially those with low education, unequal income distribution and uneven development processes between cities and villages. Development in the industrial sector aims to gradually utilize funds and natural resources from cultivation to increase economic growth, especially as an effort to provide added value for industrial growth. With this, encouraging the creation of workers who play an active role in industrial growth that can expand and balance work and employment opportunities. Absorption of labor is part of the factors supporting the ongoing economic development and industrial development. The working population must be absorbed and spread across various sectors of the economy. Gorontalo Province is a province in Indonesia which in its economic development has a strategic role in supporting Sulawesi as a center of industrial production. The diversity of natural resources in Gorontalo has significant opportunities in the industrial sector. Therefore, sectors that have the potential to accelerate the recovery of economic growth are encouraged to boost the regional economy. Industrial development is strongly influenced by the workforce, the more productive the workforce, the higher the productivity sectors that have the potential to accelerate the recovery of economic growth are encouraged to boost the regional economy. Industrial development is strongly influenced by the workforce, the more productive the workforce, the higher the productivity sectors that have the potential to accelerate the recovery of economic growth are encouraged to boost the regional economy. Industrial development is strongly influenced by the workforce, the more productive the workforce, the higher the productivity(Caya, 2019). All regions, including Gorontalo Province, expect high economic growth in the implementation of its development accompanied by equity, so that it will improve the welfare and quality of life of its people. The industrial sector is expected to be able to absorb labor and is expected to be able to improve the welfare of its people



Source: Central Statistics Agency, 2020.

**Figure 1.1 Percentage of Labor by Main Employment**

The number of people employed in each job category indicates the ability to absorb labor. The labor structure based on employment in August 2020 was still dominated by three main occupations namely, agriculture, forestry, and fisheries by 32.08 percent; trade, warehousing transportation, consumption accommodation by 28.86 percent; and communication information and services by 23.50 percent. Based on the trend of employment from August 2019 to August 2020, the more job opportunities for the population are the Agriculture group (0.98 points) and the Mining Industry group (0.20 points). On the other hand, the decline in employment was mainly due to the construction industry (0.60 points) and the accommodation trade group (0.57 points), while the information and services group remained unchanged (Statistics & Gorontalo, 2020).

The influencing factors are natural resources, human resources, capital resources, expertise and entrepreneurship. Natural resources include land and all natural resources that greatly affect the industrial growth of a region, especially in terms of procurement of production raw materials. Second, human resources that determine the success of economic development depend on the quantity and quality of the population. Population is a potential market for production and the quality of the population determines high labor productivity. Next is the capital resources needed by humans to procure these raw materials and raw materials. Capital resources can be very important for the development and smooth running of industry because capital goods can also increase productivity. Skills and entrepreneurship are needed to process these materials into something that has more value which is called the production process. This is inseparable from the issue of the level of education of the workforce.

## 2. STUDY THEORY AND RESEARCH METHODS

### 2.1 Theory Study

#### 2.1.1 Labor Absorption

13 Labor absorption is a certain quantity of labor used by a particular sector or business unit. Labor absorption can be influenced by two factors, namely external factors and internal factors. These external factors include economic growth, inflation, unemployment and interest rates. In the business world, this condition cannot be influenced, so only the State can overcome and influence external factors (Sihombing, 2019). Under these conditions, the industrial sector can be developed by utilizing internal industry factors such as labor productivity, capital expenditures, and unpaid labor or non-wage labor expenditures (Anggriawan, 2020).

#### 2.1.2 Labor in the Industrial Sector

Industry is part of community activities related to the production, distribution, exchange of fiber for consumption of products or services from a certain region or area (Setiawan, 2020). In principle, the industry also applies operations management a lot. In industrial operations there is also a transformation from input to output so that the production process is carried out to increase added value. Historically, production terminology has been associated with the manufacturing process or manufacturing. Types of industry based on the number of workers (Saleh, 2016) is a home industry, which is an industry with a workforce of less than 4 people with limited capital and the workforce can come from family members. Small industry is an industry that employs between 5-19 people with relatively small capital. Medium industry or medium industry is an industry whose workforce is between 20-99 people and has a large enough capital. Large industry is an industry that has a workforce of more than 100 people and has large capital in the form of shares.

### 2.1.3 Labor Productivity

Economically, productivity is the acquisition of the results achieved (output) as much as possible with the smallest sacrifice of resources used (input). Productivity has three important elements, namely First, effectiveness as the value of accuracy to achieve targets. Second, efficiency saves existing resources. Third, quality which states how far the level of fulfillment of various requirements, specifications, or customer expectations. Factors that affect work productivity include supervision, knowledge or level of education, motivation, work culture, skills, technology and production facilities, and achievement management (Lilimantik, 2016). Labor is an important part of increasing productivity. Work productivity will be achieved through strong motivation supported by a high work discipline culture.

### 2.1.4 Investment

Investment is an activity of investing or placing assets, either in the form of assets or funds, in something that is expected to buy income or will increase its value in the future. Juridically based on Article 1 point 1 UUPM provides the definition of investment as all forms of investment activities, both by domestic investors and foreign investors to conduct business in the territory of the Republic of Indonesia. (Ramli, 2015). Therefore, investment or investment can be divided into two types, namely, domestic investment (PMDN) and foreign investment (PMA). Keynesian investment theory states that the amount or amount of investment does not only depend on income or on one factor but also on the cost of capital or interest rates. Investments are considered profitable to the extent that MEC costs and capital costs are the same. The factors that influence the company's investment decisions based on Keynes's investment theory are the optimism of managers, the rate of economic growth, the increase in the country's share capital, technological changes, and changes in interest rates. Keynes argued that investment, which responds to variations in interest rates and expectations about the future, is a dynamic factor that determines the level of economic activity.

### 2.1.5 Education Level

Education is an important component in efforts to improve the quality of human resources. Quality human resources increase productivity and the economy, which in turn increases the competitiveness of the country. Indicators of education level have a role in employment. If the level of education possessed by a workforce is high, the productivity will be high. Because, in general, the type and level of education is considered to represent the quality of the workforce.

## 3.1 RESEARCH METHOD

In this study, quantitative regression analysis was used using the panel data method and as a tool in data processing using the Eviews 9 program. Panel data analysis method was a combination of cross-sectional data and time-series data. Data collection in this study used cross-sectional data from 6 districts/cities in Gorontalo Province and time-series data in the 2016-2020 time period. The linear equation model is as follows:

$$Y_{it} = \beta_0 + \beta_1 PTK_{it} + \beta_2 IN_{it} + \beta_3 TP_{it} + \varepsilon_{it}$$

Information:

- $\beta_0$  = Constant (intercept)
- $\beta_1, \beta_2, \beta_3$  = Multiple regression coefficient (slope)
- Y = Number of Workers
- PTK = Labor Productivity ( $X_1$ )
- IN = Investment ( $X_2$ )
- TP = Level Education ( $X_3$ )
- i = Regency/City di Gorontalo Province
- t = Time (years 2016-2020)
- $\varepsilon$  = Error Variable Outside the Model

Three kinds of estimation models that can be used in panel data regression analysis are the common effects model, fixed effects, and random effects. In testing the panel data regression model, it can be done by choosing the test method, namely the Chow test and the Hausman test. The Chow test is a test carried out to select the best estimation model between the common effect or fixed effect models. Hausman test is a test conducted to choose the best estimation model between fixed effect or random effect models. The classical assumption hypothesis testing is a statistical requirement that must be met by panel data regression analysis consisting of a normality test to check whether or not the variables in the regression model used are normally distributed, multicollinearity test to test the regression model has a correlation between independent variables, autocorrelation test to see sample variance that cannot describe the population variance, and heteroscedasticity test to determine whether there is a relationship between the independent variables. Furthermore, a statistical test will be carried out consisting of a coefficient of determination test ( $R^2$ ) to see how far the independent variable is in explaining the dependent variable being tested, the F test to find out whether the independent variable has a simultaneous effect on the dependent variable, and the t test to find out how far the influence of the variable is independent of the dependent variable.

## 4.1 RESULTS AND DISCUSSION

To determine the most appropriate model used in this study, the estimation of the Chow test and the Hausman test were carried out. After testing with the Chow test and Hausman test, the cross-section F probability value of 0.0000 is obtained which is smaller than the significant level value (= 1%, 5%, and 10%), so the model used is the fixed effect



model (FEM). With the estimation results from the model selection using the fixed effect model, the following results are obtained:

Table 1.3 Results of Regression Analysis

Dependent Variable: TK?				
Method: Pooled EGLS (Cross-section weights)				
Total pool (balanced) observations: 30				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3688.046	10018.10	0.368138	0.7165
LOG(PTK?)	-2747.767	199.1398	-13.79818	0.0000
LOG(IN?)	131.4291	40.08827	3.278492	0.0036
LOG(TP?)	2034.519	2535.404	0.802444	0.4313
Fixed Effects (Cross)				
_KOTAGOR--C	1926.721			
_KABGOR--C	4433.258			
_KABBOALEMO--C	-3146.678			
_KABPHWATO--C	1067.435			
_KABGORUT--C	-4760.874			
_KABBONBOL--C	480.1379			
R-squared	0.977583			
Adjusted R-squared	0.969043			
S.E. of regression	515.7275			
F-statistic	114.4734	Durbin-Watson stat	1.845318	
Prob(F-statistic)	0.000000			

Based on the results of the panel data regression analysis above, it can be interpreted as follows:

1. Labor absorption, without being influenced by any independent variables (Labor Productivity, Investment, Education Level) in this study will remain constant at 3688,046 percent.
2. Labor productivity has a negative and significant effect on employment in the industrial sector in Gorontalo Province. So it can be concluded that an increase in productivity of 1 unit can reduce the absorption of labor by -2747,767.
3. Investment positive and significant on absorption industrial sector workers in Gorontalo Province. So it can be concluded that 1 unit increase in investment can increase labor absorption by 131.4291.
4. Education level has a positive and insignificant effect on absorption industrial sector workers in Gorontalo Province. So it can be concluded that 1 unit increase in the level of education will increase labor absorption by 2034,519.

The results of the classical assumption test are to test the feasibility of the regression model. The results of the normality test show that the Jarque-Bera value is 0.550197 and the probability is 0.759497 which explains that the data is normally distributed because it has a significance value > 0.05 (5%). Meanwhile, for the multicollinearity test, the results between the independent variables were less than 0.80, so it can be concluded that there were no variables that indicated multicollinearity symptoms. The autocorrelation test uses the Durbin-Watson test that the DU result of 1.7386 is smaller than the calculated DW value of 1.8453 and the calculated DW value is smaller than the 4-du value of 2.2614 so that there is no autocorrelation problem. Heteroscedasticity test showed that the probability value of chi-square is greater than the significant level of 0.05, namely the probability value of CAR is 0.6593, IN is 0.5920,

For statistical hypothesis testing, the coefficient of determination (R2) shows the R-squared value is 0.969043. This means that the absorption of labor in the industrial sector of 0.969043 or 96.90% can be explained by labor productivity, investment, and education level and the remaining 3.1% is a contribution from other factors not discussed in this study. For the f-statistical test, the probability result is 0.0000. This value is smaller than the significant level ( $\alpha \leq 0.05$ ). So it can be concluded that the three independent variables, namely labor productivity, investment, and education level simultaneously have a significant effect on the dependent variable. And finally the results of the t-test for the three independent variables, namely:

1. The partial hypothesis testing of labor productivity on labor absorption produces a probability of 0.0000. The test results show that the probability test is < level of significance (5%). This means that there is a significant effect of labor productivity on labor absorption.
2. Testing the partial hypothesis of investment in labor absorption produces a probability of 0.0036. The test results show that the probability test is < level of significance (5%). This means that there is a significant effect of investment on employment.
3. The partial hypothesis testing of the level of education on labor absorption produces a probability of 0.4313. The test results indicate that the probability test is > level of significance (5%). This means that there is no significant effect of the level of education on labor absorption.

From the various tests that have been carried out, the following research results were obtained:

1. Productivity has a negative and significant effect on employment in the industrial sector in Gorontalo Province in the 2016-2020 period. With the decreasing level of productivity, the company needs a workforce that can be adjusted and is more optimal for a company. This study is in accordance with research conducted by Muktiratih (2016) with the title the effect of labor productivity, minimum wages, and economic growth on

- labor absorption in Central Java Province that productivity has a negative and significant effect on employment in Central Java because of increased labor productivity. work should be done as much as possible.
- Investment has a positive and significant effect on the number of employment in the industrial sector in Gorontalo Province in the 2016-2020 period. This is because the production process in Gorontalo Province is still done manually so that capital is used to add raw materials. In addition, one of the regional breakthroughs in economic development is considering that the industrial and agricultural sectors are the leading sectors as prime movers for the regional economic development of Gorontalo Province (RKPD Gorontalo Province 2018). This is in accordance with research conducted by Nur Asis (2016), that an increase in investment will increase the number of industrial companies so that they have a positive relationship and have a significant effect.
  - The level of education (measured by SMA APM) in Gorontalo Province has a positive and insignificant effect on employment in the industrial sector in Gorontalo Province in the period 2016-2020. In today's modern economic life, the labor force that does not have high skills will be eliminated by renewable technologies because technological developments are very fast and production processes are increasingly being simplified. Thus, the labor force with low level of education but receiving training will have relatively the same productivity as people with higher education or formal education. This research is in line with research conducted by Imam Buchari (2016) which suggests that the level of education has a positive and insignificant effect on Labor Absorption in the Manufacturing Industry on the Island of Sumatra.
  - Productivity, investment and education level together have a significant influence on employment in the industrial sector in Gorontalo Province in the 2016-2020 period.

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### 5.1 CONCLUSION

Based on the results of research and discussion, it can be concluded as follows:

- Labor productivity partially affects the absorption of labor in the industrial sector, which means that if the productivity level decreases, the company needs a workforce that can be adjusted and is more optimal for a company, so that in producing a production if the workforce shows higher skills, it will reduce the productivity. labor demand.
- Investment partially affects the absorption of labor, which means that a high increase in investment will increase production capacity which will lead to the creation of new jobs.
- The level of education partially does not affect the absorption of labor, which means that to absorb the workforce, education is not a benchmark, but the abilities and skills of the workforce.
- Labor productivity, investment and education level simultaneously have a significant effect on employment in Gorontalo Province in 2016-2020. If the additional demand for labor is smaller than the additional supply of labor, it will result in an increase in the unemployment rate. This is not seen in the problem of the number of workers but how to increase the number of workers offered and the quality of the workforce.

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