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# The effect of investment, education level, and government spending on economic growth and labor absorption in East Kalimantan Province, Indonesia

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**Abstract.** To spur the rate of economic growth and labor absorption, a special scheme is needed that is linked with the role of the private sector (investment) and government policy intervention through the allocation of expenditure, so as to create sustainable human resources interpreted by the intensity of education. The objectivity of the study focuses on the identification of investment, level of education, and government spending so that is known the extent of their role in economic growth and labor absorption in East Kalimantan Province. Time-series data processing during the period 2009-2019 is supported by quantitative techniques, making it easier for researchers to measure the accuracy of the unit in each variable. The study coverage only covers the province of East Kalimantan. Then, the data are interpreted through path analysis, where the output is aimed at three steps (direct effect, indirect effect, and total effect). Several things can be concluded to answer the objectives of the study, namely that investment and government spending directly have a positive-significant effect on economic growth. On the one hand, only the level of education has a significant positive effect on labor absorption. For the indirect effect, where economic growth is an intervening variable, the result is that investment and government spending both have a positive effect, but have no significant effect on labor absorption through economic growth.

**Keywords.** sustainable human resources, time-series data, path analysis, East Kalimantan

## 1. Introduction

Wahyuni (2014: 83) indicates an increase in the economy due to investment, so the need for labor will increase in order to produce increased output. With an increase in output based on expertise in certain fields that require an educational background, it will have an impact on

increasing national income, so that in the end the level of community welfare will also increase. Through investments, it will encourage the creation of new capital goods so that they will absorb new production factors, namely creating new jobs or employment opportunities that will absorb labor which in turn will reduce unemployment (Sucitrawati, 2014: 13). Investment has a very big role in the effort to absorb labor in order to reduce the unemployment rate (Manuaba, 2016: 157).

Broadly speaking, the Central Statistics Agency of East Kalimantan Province (2020) reports the performance of five indicators, including realization for investment in terms of foreign investment (PMA), domestic investment (PMDN), education level, government spending, economic growth rate, and absorption. the workforce is still not consistent (one way). This is marked by the development of special data in 2019, the entry of the flow of the two types of investment (PMA and PMDN) to the East Kalimantan Province as a whole marked with a range of IDR 35,620,544,100,000 million, of which the amount is still dominated by the realization of PMDN compared to PMA with details of each amounting to IDR 22,674,053 million compared to IDR 863,099.40 million.

With the presence of this large investment, it seems that it has not fully had an impact on increasing the workforce, where the workforce, in this case, is measured by the Labor Force Participation Rate (TPAK) which is still calculated at 66.44%. The achievement of the TPAK, of course, requires an educational aspect, because the development of science and technology can support this. The population in East Kalimantan Province who has taken education at the level of basic education (SD) to university graduates is 2,747,287 people, so this figure is in accordance with expectations or expectations considering that the unemployment rate reaches 57,478 people or only 2.09% of the total population. who has received an education? Given that educational attainment is symbolized by the average length of schooling (RLS) of East Kalimantan residents who have spent time in school from various levels of educational backgrounds aged 25 years and over, it is certainly an important component for further investigation.

The increasing productive age population in East Kalimantan, the demand for labor demand, and the role of the government to allocate part of its budget through training-based programs and support the productivity of the workforce. From the total government expenditure of around Rp. 10,669,670,000, it appears that it is still dominated by indirect expenditure which is indirect compared to direct spending to address this problem, so that the achievement of East Kalimantan's economic growth is still in the low category, namely 4.77%.

In addition, the importance of the element of education can also affect the quality of a person's knowledge, so that they are expected to be able to compete in the labor market and gain better job opportunities. By obtaining a decent job, it is hoped that it can earn income and improve economic welfare per capita as well as in the aggregate.

Ganie (2017: 58) emphasizes that the absorption of labor by companies is generally based on the quality of the workforce which can be seen from the level of education which is measured by the length of time taken education. The low level of education of the population will lead to low quality and quantity of output produced by producers and, directly, will have an impact on the low absorption of labor in this sector (Buchari, 2016: 239). Nowak & Gangadhar (2006: 81) underline that the level of education affects economic growth, therefore the government keeps education as the top priority in public policy. Education is the main factor for increasing economic growth by increasing human skills and knowledge which will increase productivity and competence (Hanif & Noman, 2016: 41).

East Kalimantan is one of the richest provinces in Indonesia with a large base of natural resource reserves (such as mining and quarrying commodities), of course, a big question and

job, to what extent investors in this sector to develop regional potential and absorb labor so that the resulting economy should ideally be inclusive. Based on a balance of theoretical assumptions and phenomena that are still problematic, we are interested in investigating the effects of investment, education levels, and government spending on economic growth and employment in East Kalimantan Province. The flow for this article is divided into five sessions. The first part includes an introduction (background and research objectives). The second part is a review of previous studies and the formulation of hypotheses. The research approach is reviewed in the third section. For the fourth section, detail the findings in detail. After that, the discussion and conclusions in the fifth section.

## **2. Theoretical Review**

### **2.1. Previous Studies**

Suindiyah (2009) in her journal entitled "The Effect of Investment, Labor and Government Expenditures on Economic Growth in East Java Province". This research shows that variable investment, labor, and government expenditure have influence positively and significantly on economic growth. This indicates that three variables (investment, labor, and government expenditure) have to give contributed to economic growth that is positive. This means if investment, labor, and government expenditure are increasing because of growing up economic growth in East Java Province. It is recommended that to increase the economic growth of East Java Province, police are needed to motivate all parties to make the investment in this province. The effort to increase investment should be focused on activities that involve many workers.

Maisaroh & Maisaroh (2017) in their journal entitled "The Effect of Investment, Government Expenditure, and Labor on PDRB Banten Province". The purpose of this study is to determine the effect of investment, government spending, and labor simultaneously or partially on the Gross Domestic Product of Regencies / Cities in Banten Province in the 2010-2015 period. The method used in this research is the panel data regression analysis method. The results of this study conclude that simultaneously and partially investment, government spending, and labor have a positive and significant effect on the GRDP of districts/cities in Banten Province.

Arani et al. (2017) in his journal entitled "Effects of Government Investment in Energy Sector on Growth, Employment and Private Investment in Iran". This research applies to governmental investment effects in the energy sector including subsectors of oil, gas, and electricity on growth, private investment, and employment in agriculture, industry, and mining, and services during 1971-2013. We use vector autoregressive models in order to derive the response of variables, impulse response function, and variance decomposition. The results indicate that governmental investment influences growth in agriculture, industries, and mining, and services negatively but in the medium term, it influences agriculture, and industries, and mining positively. The effect of government investment is positive for private investment. In industries and the mining sector, the relationship is positive in long term and negative in middle term.

Yuliantari et al. (2016) in his journal entitled "The Effect of Domestic Investment, Foreign Investment and Direct Expenditures and Labor on Economic Growth". In general, the results of this study indicate that the variables of PMDN, PMA, and Government Expenditures Direct Expenditures and Labor on Economic Growth in East Kalimantan. This is indicated by the Adjusted R Square value of 64.6%, while the remaining 35.4% is influenced by other factors. In this study, it is known that Domestic Investment and Government Expenditures Direct Expenditures have a negative and significant effect on Economic Growth in East Kalimantan.

Meanwhile, Foreign Investment and Labor have a positive and significant effect on Economic Growth in East Kalimantan.

Mulyaputri & Kartika (2020) in their journal entitled "The Effect of Private Investment and Education Levels on Labor Absorption and Economic Growth in Regencies / Cities in Bali Province". Economic growth that is not evenly distributed and tends to decline still leaves problems that must be handled by the government in the development of a region. Bali Province has nine districts/cities with different backgrounds. This difference creates obstacles in economic equality, due to the concentration of an economic activity that will increase economic growth. The result, the study found that the level of education and employment has a positive and significant effect on economic growth, while private investment has no positive and significant effect on economic growth. Labor absorption is an intervening variable from the level of education to economic growth, but not an intervening variable from private investment to economic growth.

Diantari & Wirathi (2017) in their journal entitled "The Effect of Private Investment and Government Investment through Economic Growth on Job Opportunities in Bali Province". The purpose of this study was to analyze the effect of private investment, government investment, and economic growth on employment opportunities in Bali Province. This study uses non-participant observation data collection methods. The analysis technique used is path analysis. The results of the analysis show that government investment and private investment have a positive and significant effect directly on economic growth. Government investment, private investment, and economic growth also have a positive and significant impact directly on job opportunities in Bali Province. The indirect effect of private investment on job opportunities in Bali Province through economic growth is 0.010, which means that the indirect effect of private investment on employment opportunities through economic growth is 1.0 percent. The value of the indirect effect of government investment on job opportunities in Bali Province through economic growth is 0.08, which means that the indirect effect of government investment on employment opportunities through economic growth is 8.0 percent.

Javid (2019) in his journal entitled "Public and Private Infrastructure Investment and Economic Growth in Pakistan: An Aggregate and Disaggregate Analysis". This study investigates the relationship between infrastructure investment and economic growth at the aggregate and sectoral levels, namely, the industrial, agriculture, and services sectors for Pakistan over the period from 1972 to 2015. In contrast to earlier literature, we make a comparative analysis of the different compositions of infrastructure investments, including public versus private investment and infrastructure investment in sub-sectors such as power, roads, and telecommunication sectors. The long-run relationship is estimated using fully modified ordinary least squares (FMOLS) to address the problem of reverse causality. The main conclusion of this study is that both public and private infrastructure investments have positive but different effects on economic growth. In other words, the marginal productivities of private and public infrastructure investments across the different sectors of the economy. In most cases, public infrastructure investment has a larger impact on economic growth than private infrastructure investment.

Windayana & Darsana (2020) in their journal entitled "The Effect of Education Level, MSE, Investment on Labor Absorption and Economic Growth, Districts / Cities in Bali Province". Based on the results of the analysis, it can be concluded that the level of education does not have a significant effect on labor absorption. UMK has a positive and significant effect on employment. Investment has a negative and significant effect on employment. Education level has a positive and significant effect on economic growth. UMK has a negative and significant effect on economic growth. Investment does not have a significant effect on economic growth.

Labor absorption has a direct and significant effect on economic growth. UMK has an indirect effect on economic growth through labor absorption as indicated by employment as an intervening variable. The level of education and investment does not have an indirect effect on economic growth through labor absorption, which is indicated by labor absorption, not as an intervening variable.

Wilis (2015) in his journal entitled "Analysis of the effect of minimum wages, investment and government spending on employment based on education". The conclusion of the study is that wages have a significant negative effect on labor absorption, regional capital participation does not have a significant effect on labor absorption, PMDN has a significant positive effect on labor absorption, PMA does not have a significant effect on labor absorption, and government spending has a significant positive effect on absorption. workers in 38 Regencies / Cities in East Java Province.

## **2.2. Hypothesis Formulation**

In essence, investment is the first step in economic development activities. The dynamics of investment affect the high and low levels of economic growth, reflecting the rampant sluggishness of development. In an effort to grow the economy, every country is always trying to create a climate that can stimulate investment. The targets aimed are not only the public or the domestic private sector but also foreign investors. Foreign capital can enter a country in the form of private capital and state capital. Private foreign capital can take the form of direct investment and indirect investment (Deliarnov, 2005: 277).

Direct investment means that companies from an investing country supervise the assets (assets) invested in the capital importing country by means of this investment. Meanwhile, indirect investment is better known as portfolio investment, which mostly consists of control of transferable shares (issued or guaranteed by the government of the importing country of capital), of shares or debt securities by citizens of several other countries.

In this case, the use of foreign capital not only overcomes capital shortages but also technological backwardness. State foreign investment to accelerate economic development is more important than private foreign capital, because the financial needs of developing countries are so great while private foreign investment is only able to solve a small part. Private foreign investment does not want to be involved with spending issues in supporting and advancing the contribution of economic growth, such as: through the fields of education, public health, medical programs, technical training, research, and so on. Although these sectors indirectly increase economic efficiency and productivity, in the long run, they do not provide direct benefits and therefore can only be relied on by grant assistance from developed countries. Investments in this field require a large amount and risk where private capital is not able to carry it out (Jhingan, 2010: 64).

The arguments supporting the need for investment for economic growth are explained according to Harord Domar's theory. This theory emphasizes the need for private investment in achieving economic growth because investment creates income and enlarges the production capacity of the economy by increasing the capital stock. Therefore, as long as net investment continues, real income and output will always increase. However, to maintain an equilibrium level of income for full-time workers from year to year, both real income and output must increase at the same rate as the productive capacity of capital increases. Otherwise, any differences between the two will lead to excess capacity (Sukirno, 2008: 148).

The relationship between investment and economic growth is very closely related, this is because investment is one of the factors that can drive a country's economic growth. In order to experience rapid growth, every economy must save and invest as much of its GNP as possible.

If the economic growth of a country increases, there will be an increase in job opportunities, welfare, productivity, and income distribution. In the classical theory with the Harrod-Domar growth model, to stimulate economic growth, new investment is needed which is a net addition to the capital stock.

Capital accumulation will be successful if some part or proportion of the existing income is saved and invested to enlarge the product (output) and income in the future. To build it, it is better to divert sources from consumption flows and then divert them to invest in the form of "capital formation" to achieve a greater level of production. Investments in the field of human resource development will increase the capacity of human resources so that they become skilled experts who can facilitate productive activities.

According to Sukirno (2000: 285) investment activities allow society to continuously increase economic activity and job opportunities, increase national income and increase the level of community prosperity. This role comes from three important functions of investment activities, namely: investment as a component of aggregate expenditure, so that an increase in investment will increase aggregate demand, national income, and employment opportunities; increase in capital goods as a result of the investment that increases production capacity and is always followed by technological developments.

Referring to human capital theory, education has an effect on economic growth through increasing skills and labor productivity. Rapid economic growth in Asian countries and progressive changes in production towards high-tech industries and services have resulted in increasing demands from the business world for the need for skilled and educated (quality) human resources. HR as a workforce requires skills in carrying out tasks, improving organizational quality, and supporting economic growth (Sulistyowati, 2010: 6).

No country can achieve sustainable economic development without a substantial investment of human capital. Education enriches human understanding and the world. Education also improves the quality of human life and broader social benefits for both individuals and society. Education increases the productivity and creativity of the workforce and enhances entrepreneurship and technological advances. In fact, education plays an important role in saving social and economic progress and increasing income distribution (Riswandi, 2009: 69).

Education plays a major role in shaping the ability of a developing country to create new knowledge, absorb modern technology, produce experts, and develop capacities, in order to create sustainable growth and development. In human capital theory, it states that education has a positive influence on economic growth. If a person has a higher level of education, and the length of time he has been in education, will have a better job and wages compared to his education that is lower. Conversely, the wages of workers reflect productivity, so the more people who have higher education. The higher the productivity and national economy, the better it will grow (Indrasari, 2009: 39).

The government budget is a formal document resulting from an agreement between the executive and the legislature regarding the expenditures that are determined to carry out government activities and the revenue that is expected to cover the necessary expenditure or financing needs if a deficit or surplus is expected. The budget functions as a public policy statement, as a fiscal target that describes the balance between expenditure, income, and desired financing, becomes the basis for control that has legal consequences, and becomes the basis for evaluating government performance (KSAP, 2005: 13).

Therefore, we can be sure that the State Budget of a country or the Regional Budget of a region has a very significant relationship to the economy, especially the real sector. This significance is reflected in its contribution to the Gross Domestic Product (GDP). A country's fiscal policy is an instrument to carry out the stabilization, distribution, and allocation functions

aimed at stimulating economic growth and encouraging job creation. In Indonesia, for example, the impact of the State Budget on the real sector was one of the indicators that identified the impact of fiscal policy on the economy in 2008. In a sluggish economic condition, the policy was directed at fiscal stimulus, among others, through autonomous government spending that stimulated economic growth.

The increase in state revenue through revenue from revenue sources is a result of the government's performance in managing state revenue posts. Likewise, the increase in expenditure absorption and financial accountability. Budget absorption is one indicator that shows the success of a program or policy undertaken by the government. The ratio of realization to budget ceiling reflects the absorption of the budget in carrying out various predetermined programs. Conversely, the slow absorption of the budget results in a slowdown in economic growth because budget execution has a very large impact on the economy.

One indicator of the government's financial performance in the expenditure budget sector can be seen from the realization of the prioritized expenditure budget allocations that are aligned with the acceleration of economic growth to reduce poverty and unemployment. The explanation and description as described previously prove that the realization of regional government revenue and expenditure has a very close relationship with the concept of regional economic growth.

The Harrod-Domar theory reminds us that as a result of the investment made in the next period the capacity of capital goods in the economy will increase (Sukirno, 2010: 101).

According to Harrod-Domar (Sukirno, 2010: 102), investment seeks to show the necessary conditions for steady growth, which can be defined as growth that will always create full use of capital tools that will always prevail in the economy. The main explanation of this theory is that investments made by the community within a certain time are used for two purposes. First, to replace capital tools that can no longer be used. Second, to increase the number of capital instruments available in society.

Investment can be defined as the expenditure or expenditure of investors or companies to buy capital goods and production equipment to increase the ability to produce goods and services available in the economy (Sukirno, 2010: 4). This increase in the number of capital goods allows the economy to produce more goods and services in the future. Labor is the capital for the wheels of development to move. The number and composition of the workforce will continue to change in line with the demographic process. In the production process activities, labor is the most important factor because humans move all the means of production such as raw materials, water, and so on.

Investment as a production factor is a very important factor in increasing production capacity or the number of industries. This increase in investment is strongly influenced by demand for production, both domestic demand. This demand is a market and this affects the number of workers in production activities.

The investment aims to maximize total output at one point in time or one period of time. The amount of investment that is carried out or realized plays a major role in the absorption of labor in a society and a lack of investment will lead to unemployment (Sukirno, 1994: 117). The existence of investment in society will first provide and increase employment opportunities so that community income increases. An increase in income will increase public consumption so that entrepreneurs will be motivated to increase their production by expanding their enterprises, either by adding their materials, labor force, and other production factors.

In planning the absorption of labor, that by means of additional capital in each development activity will have a positive impact on the development of total employment opportunities. Changes or increases in investment will of course be followed or offset by an increase in labor,

thus every additional investment will certainly change the quantity of labor. So, to know the job opportunity process, it is necessary to know in advance the investment project in the future. A further problem is that it is necessary to know the extent to which employment opportunities have changed as a result of the increase in the amount of investment. Labor absorption is closely related to the government's ability to create a comfortable investment climate and the quality of human resources in creating jobs. increased investment will open or expand job opportunities. Thus, it will absorb more human resources. In order for investment development to materialize, the government provides various incentive facilities to attract investors in economic sectors that the government wants to develop.

The granting of facilities is based on all business fields. the location of the community's need for the product, the level of technology used, the absorption of labor, and others. One of the main keys to economic growth. On the one hand, the investment reflects effective demand and on the other hand, investment also creates productive efficiency for products in the future. The investment process results in an increase in the output of an area. Investment is needed to meet increasing population demands and job opportunities. With increased investment, new job opportunities will be created which will eventually absorb labor, thereby reducing the unemployment rate.

High labor absorption in developed countries is due to the support of the quality of human resources. A large and developed nation is certainly supported by adequate quality education for its citizens (Wu, 2018: 525). The high quality of education will also enhance the quality of human resources. Therefore, education has an important role in the life of the nation and state in an effort to create quality human resources (Mahampang, 2019: 182). The quality of education can be seen from the high graduation rate. The higher the graduation rate, the better the quality of education.

The condition of energy absorption can be caused by education. (Danim, 2004: 271) states that there are three reasons for investing in education. One of them, education can increase income productivity in agriculture and help absorb labor into a modern industry. According to Lavrinenko & Treinovskis, 2015: 16) the higher the level of education, the dominant impact on employment status in the labor market. This statement is supported by several research results, including by Buchari (2016: 51) which states that the level of education has a significant positive impact on employment in the manufacturing industry on the island of Sumatra. Meanwhile, Wambugu (2011: 109) states that a higher level of education is a way to formal employment and a higher annual income. According to him, for individuals to access job opportunities with higher income requires more than basic education. But it is not in accordance with Palupy's research (2018: 348) which states that education in the short and long term does not have a significant effect on labor absorption in Central Java.

The national income balance identity is Consumption (C) plus investment (I), Government Purchases or Expenditures (G), and Exports (X) minus imports (M) which are formulated by the equation ( $Y = C + I + G + XM$ ), which is a source of legitimacy for the Keynesian view of the relevance of government intervention in the economy. There are many considerations that underlie decisions in managing expenses. It is not enough for the government to only achieve the ultimate goal of each of its spending policies, but also to take into account the targets that will enjoy the policy (Rahmansyah, 2004: 15).

This opinion means that increasing expenditure for the sole purpose of increasing national income or expanding employment opportunities is not sufficient, but it is necessary to take into account who will be employed or increase in income. In addition, the government needs to avoid increasing its role in the economy so that it does not weaken the private sector.

According to Wijaya (2000: 28), government spending has a multiplier effect and stimulates an increase in national income and will increase income, as well as multiple productions as long as the economy has not reached the level of full employment opportunity. This is because increasing aggregative demand is based on the assumption that government spending is not on projects that can hinder or replace private sector investment.

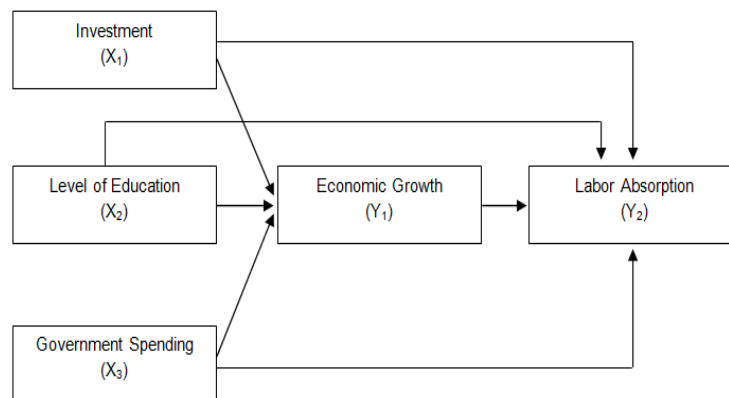
Population growth which increases from time to time will affect the number of existing workers. However, the large number of workers must be followed by the quality of the workforce. Thus, this condition is able to increase production capacity and be able to spur economic growth.

According to Todaro (2000: 362), population growth and labor force growth are traditionally considered to be positive factors that spur economic growth. A greater number of workers means that it will increase the level of production. Meanwhile, greater population growth means a larger size of the domestic market. However, it is questionable whether it is true that the fast rate of population growth will actually have a positive or negative impact on its economic development.

In an economic growth, the number of workers working is one of the factors that will affect economic growth in a region. In addition to production factors, the number of workers who work will also increase from year to year, so that if it is maximally utilized it will increase economic growth.

The relationship between changes in the value of GRDP to labor absorption is a positive relationship, an increase in GRDP will increase the amount of labor absorbed. If the GRDP value increases, the total value of output or sales in all economic units will increase. The greater the sales output made by the company, it will encourage the company to increase its workforce, so that production can be increased to pursue increased sales. This study uses changes in the value of GRDP so that the relationship can be positive or negative on labor absorption.

The main problem of employment is the lack of job creation that is not proportional to population growth at working age. Of course, this will lead to unemployment because the workforce is not absorbed based on demands for improvement in the education sector. To overcome the problem of unemployment, the government must provide employment, so that quantity (labor demand) and newcomers can be absorbed in various economic sectors and not only in the informal sector. The greater the available employment opportunities along with certain educational qualifications will lead to an increase in total production in the East Kalimantan Province through labor, investment (PMA and PMDN), government spending, and the achievement of economic growth itself. In this study, a conceptual framework was made such as Figure 1. The purpose of this conceptual framework is to describe the framework of the relationship between research variables that will be tested based on previous theory and research.



**Figure 1 - Patterns in Variable Relationships**

Source: creations by author

The proposed hypothesis needs to be verified through analysis and research. This hypothesis can be in the form of a positive or negative relationship, depending on the variables being tested. Based on the research conceptual framework that refers to the previous phenomena and theories, the following hypotheses are formulated:

1. Direct investment has a positive and significant effect on economic growth (H1).
2. The level of education directly has a positive and significant effect on economic growth (H2).
3. Government spending directly has a positive and significant effect on the economy (H3).
4. Direct investment has a positive and significant effect on labor absorption (H4).
5. The level of education directly has a positive and significant effect on labor absorption (H5).
6. Government spending directly has a positive and significant effect on labor absorption (H6).
7. Economic growth directly has a positive and significant effect on employment (H7).
8. Investment indirectly has a positive and significant effect on employment through economic growth (H8).
9. The level of education indirectly has a positive and significant effect on employment through economic growth (H9).
10. Government spending indirectly has a positive and significant effect on employment through economic growth (H10).

### 3. Methods

#### 3.1. Variable Constraints

Hasan (2002: 17) informs that variables are constructs (concepts that can be measured and observed) whose properties have been assigned values in the form of numbers, or concepts that have two or more values on a continuum. In this study, there are two types of variables, namely independent variables or independent variables (variables that affect other variables) and dependent variables or dependent variables (variables that are influenced).

Research variables in operational definitions or concepts that can be measured with various values to provide a real picture of the phenomenon under study. This study, using five components consisting of two endogenous variables and four as exogenous. Endogenous variables used in this study include Economic Growth and Labor Absorption, whereas exogenous variables are Investment, Education Level, and Government Expenditures.

In order to identify the data used, in this study, the variables that will be operationalized are as follows:

1. Labor absorption (Y2), namely the number of jobs absorbed in the economic sector which is reflected in the large number of people who have worked in East Kalimantan Province aged 15 years and over who worked according to the main occupation during 2009-2019. Percentage unit of measurement (%).
2. Economic growth (Y1), is the total value of the final goods and services produced by all production units in the East Kalimantan Province in 2009-2019. In this study, the intended economic growth uses the GRDP indicator at constant 2010 prices, which is calculated using the base year in percentage (%) units.
3. Investment (X1), is an investment activity to conduct business in the area of East Kalimantan Province which is carried out by the realization of domestic investment (PMDN) and the realization of foreign investment (PMA) using domestic capital during 2009-2019 in units of Million Rupiah (IDR 000,000).
4. Education level (X2) is represented by the average length of schooling (RLS), where the time spent by the population aged 25 years and over in all levels of formal education, namely elementary, middle, and high (graduated to high school) has been followed. population of East Kalimantan during 2009-2019 with the unit year.
5. Government spending (X3), namely all obligations of the Provincial Government of East Kalimantan which are recognized as a deduction of net assets value in the 2009-2019 budget period and consist of direct and indirect expenditures Government expenditures are stated in Rupiah (IDR).

### **3.2. Data Collection Technique**

Data collection/retrieval is the recording of events or things or information, as well as the characteristics of part or all of the population elements that will support or support research (Hasan, 2002: 19). The data collection method used in this research is a documentation study, so there is no need for a sampling technique and a questionnaire. In this study, data collection techniques are used, namely library research as a process of collecting data through literature studies related to the object under study, namely: Economic Growth and Labor Absorption, and the factors that influence it (Investment, Education Level, and Government Expenditures). which includes records that have been carried out by the parties concerned on the object understudy in the province of East Kalimantan.

### **3.3. Analysis Tools**

Data analysis uses the path analysis method, this model is also known as a causal model, this is based on the reason that path analysis allows to test the theoretical potential of a cause and effect relationship without manipulating the variables. Path analysis is part of regression analysis which is used to analyze causal relationships between variables where the independent variables affect the dependent variable either directly or indirectly through one or more intermediate variables (Sarwono, 2006: 147).

Based on this, in order to determine the direct and indirect effect of the independent variables on the dependent variable in this study, structural equations are used. consisting of:

$$Y_1 = f(X_1, X_2, X_3)$$

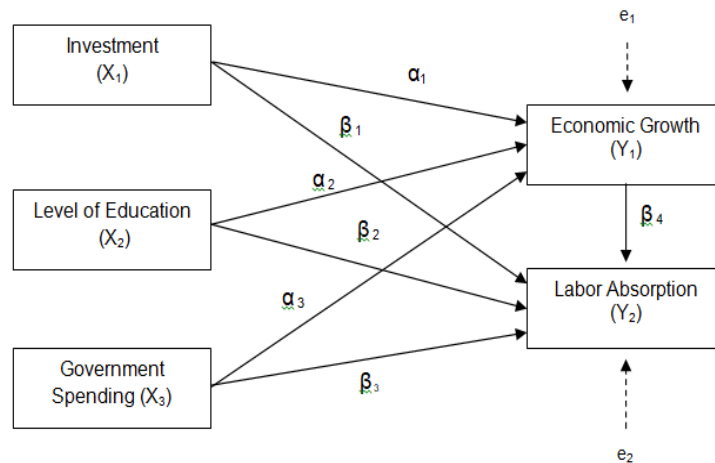
$$Y_2 = f(X_1, X_2, X_3, Y_1)$$

Where: Y2 = Labor Absorption, Y1 = Economic Growth, X1 = Investment, X2 = Education Level, and X3 = Government Spending. From this equation, a model consisting of two multiple linear regression equations using natural logarithms can be written as follows (Gujarati, 2010: 336):

$$\ln Y_1 = \alpha_0 + \alpha_1 \ln X_1 + \alpha_2 \ln X_2 + \alpha_3 \ln X_3 + e_1$$

$$\ln Y_2 = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \beta_3 \ln X_3 + \beta_4 \ln Y_1 + e_2$$

The path diagram model shows the direct, indirect, and total influence between the variables X1 (Investment), X2 (Education Level), and X3 (Government Spending) on the dependent variable Y2 (Labor Absorption) through Y1 (Economic Growth) detailed by Figure 2.



**Figure 2 - Path Diagram Design**

Source: creations by author

Path analysis steps can be seen in the following description (Utama, 2012: 33) as follows:

1. Direct effect

- $\alpha_1$  is the direct effect of investment on economic growth.
- $\alpha_2$  is the direct effect of the level of education on economic growth.
- $\alpha_3$  is the direct effect of government spending on economic growth.
- $\beta_1$  is the direct effect of investment on labor absorption.
- $\beta_2$  is the direct effect of the level of education on labor absorption.
- $\beta_3$  is the direct effect of government spending on labor absorption.
- $\beta_4$  is the direct effect of economic growth on labor absorption.

2. Indirect effect

- $\alpha_1\beta_4$  is the indirect effect of investment on labor absorption through economic growth.
- $\alpha_2\beta_4$  is the indirect effect of the level of education on labor absorption through economic growth.
- $\alpha_3\beta_4$  is the indirect effect of government spending on labor absorption through economic growth.

3. Total effect

- $(\beta_1 + \beta_4\alpha_1)$  is the effect of total investment on labor absorption.
- $(\beta_2 + \beta_4\alpha_2)$  is the effect of the total level of education on labor absorption.
- $(\beta_3 + \beta_4\alpha_3)$  is the effect of total government spending on labor absorption.

**4. Findings**

**4.1. Descriptive Statistics**

The statistical descriptive function is a statistical function to understand, describe, explain data, events, collected in a study, investigation, and do not arrive at generalizations or conclusions about the population being investigated (Supranto, 2016: 62).

The data relating to the variables in descriptive statistics are presented in the form of Table 1 which includes the minimum, maximum, and mean distribution of the data by calculating the standard deviation, skewness, and kurtosis as a percentage.

**Table 1 - Acquisition of Descriptive Statistics (Obs = 11)**

Var.	Min.	Max.	Mean	Std. Dev.
X1	4,15E+12	3,94E+13	2,8284E+13	1,03206E+13
X2	8.56	9.70	9.0791	.34189
X3	5,429,283,000	1.51E+10	9,326,917,919	2,847,063,973
Y1	-1.20	6.30	2.9155	2.35754
Y2	62.39	68.51	65.4855	1.97730

Source: calculations based on SPSS 25

The minimum, maximum, mean, standard deviation, skewness, and kurtosis values for each variable are very varied. This diversity is due to the different counting units of these variables. As is well known, the variable of Labor Absorption and Economic Growth uses a percentage (%), while the measure for the variable of Investment and Government Expenditures is Rupiah (Rp), and the level of education is based on the unit of the year. In addition, data processing for this study does not use a simplification of the unit of calculation through double-log (Log) and natural logarithms (Ln) because especially for data on Economic Growth for 11 periods, there are negative or negative values, so it is not quite right if the researcher uses both methods and data processing are presented without simplification (both Log and Ln techniques).

#### 4.2. Path Analysis Results

To see how big the role of exogenous variables is to endogenous variables, the researcher used standardized regression coefficients. This regression coefficient is the number of changes that occur in Y caused by changes in the value of X. To calculate the change, it can be done by multiplying the true predictor value (observation) for a particular case (data) with the predictor regression coefficient (Kuncoro, 2013: 349).

**Table 2 – Summary of Path Coefficients and Direct Relationships**

Relationship	Hypothesis	Coeff. Beta	t-values	Sig.	Remarks
X1 > Y1	1	0.474	3.831	0.006	Diterima
X2 > Y1	2	-0.068	-0.226	0.827	Ditolak
X3 > Y1	3	0.616	2.144	0.069	Diterima
X1 > Y2	4	0.201	0.537	0.611	Ditolak
X2 > Y2	5	1.074	2.070	0.084	Diterima
X3 > Y2	6	-0.404	-0.635	0.549	Ditolak
Y1 > Y2	7	0.109	0.168	0.872	Ditolak

Source: Calculations based on SPSS 25

Based on empirical findings, it is known the magnitude of the direct influence of investment, education level, and government spending as exogenous variables on endogenous variables, namely economic growth and labor absorption. The results of path analysis and hypothesis testing are presented in Table 2.

The results of hypothesis testing indicate that a path (model 1) is found that has a significant effect so that no path is omitted. Meanwhile, in model 2, there is also a significant path. In

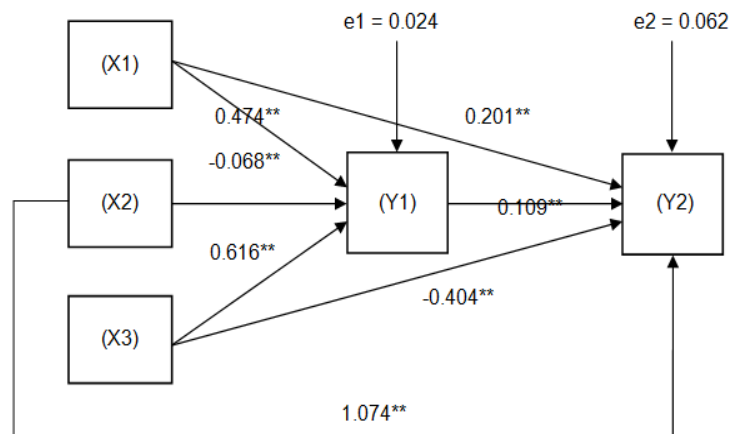
accordance with the conceptual framework of this study, 2 linear functions can be generated for structural models 1 and 2. The two generated functions are simultaneously combined into a path model. Exogenous variables (Investment, Education Level, and Capital Expenditures) are variables that affect endogenous variables (Economic Growth and Labor Absorption).

**Table 3 – Recapitulation of Direct, Indirect, and Total Effects**

Relationship	Direct effect	Indirect effect through Y	Total direct
X1 > Y1	0.474	-	0.474
X2 > Y1	-0.068	-	-0.068
X3 > Y1	0.616	-	0.616
X1 > Y2	0.201	-	0.201
X2 > Y2	1.074	-	1.074
X3 > Y2	-0.404	-	-0.404
Y1 > Y2	0.109	-	0.109
X1 > Y1 > Y2	-	$0.474 \times 0.109 = 0.051$	$0.201 + (0.474 \times 0.109) = 0.252$
X2 > Y1 > Y2	-	$-0.068 \times 0.109 = -0.007$	$1.074 + (-0.068 \times 0.109) = 1.067$
X3 > Y1 > Y2	-	$0.616 \times 0.109 = 0.067$	$-0.404 + (0.616 \times 0.109) = -0.337$

Source: calculations based on SPSS 25

Based on the function of the sub-structure 2, for the correlation value, see the explanation illustrated in Figure 3. The total effect is the sum of the direct and indirect effects with this provision, then the total effect of all research variables is presented in Table 3.



**Figure 3 – Overall Coefficient Structure**

Note: \*\*p < 0.10

In an indirect relationship, Investment and Education levels both increase the number of Labor Absorption through the role of Economic Growth with gains of 0.252 and 1.067. In more detail, each variable path can be described by the model in Figure 3.

It can be concluded, that there are 2 exogenous variables, namely Government Expenditure Investment for model 1 which has a positive impact on Economic Growth. Meanwhile, from model 2, direct investment, education level, and economic growth also have a positive impact on labor absorption, but government spending is negative. It is proven that the direct effect of

Government Expenditures has the highest path coefficient value among other variables on Economic Growth (model 1), on the contrary in model 2 is the Education Level with the greatest coefficient to form Labor Absorption.

#### 4.3. Sobel Test Confirmation

By calculating the indirect effect between investment on labor absorption through economic growth by multiplying the path X1 - Y1 (a) by the path Y1 - Y2 (b) or ab (0.474 x 0.109) and entering the standard error path a (0.000) and line b (3,545) in the Sobel test menu.

The indirect effect of investment on labor absorption through economic growth has a path coefficient of 0.051 (positive) with a probability of 0.841 (sig> 0.10) or in other words, it has a positive but insignificant impact. For this reason, the proposed hypothesis is rejected (see Figure 4).

Input:		Test statistic:	Std. Error:	p-value:
a	0.474	Sobel test: 0.2	0.25833	0.84148058
b	0.109	Aroian test: 0.2	0.25833	0.84148058
s <sub>a</sub>	0.000	Goodman test: 0.2	0.25833	0.84148058
s <sub>b</sub>	0.545	Reset all	Calculate	

**Figure 4 – Sobel Test for X1 Against Y2 through Y1**

Source: Calculations based on SPSS 25 and Sobel test

Figure 5 describes the indirect effect of the level of education on labor absorption with the role of economic growth as an intervening variable through the multiplication of pathways X2 - Y1 (a) with paths Y1 - Y2 (b) or ab (-0.068 x 0.109) and incorporating the standard error path. a (2,072) and line b (0.545) on the Sobel test. The indirect effect of education level on labor absorption through economic growth is the path coefficient of -0.007 (negative) with a probability of 0.974 (sig> 0.10) or it is concluded that it has a negative and insignificant impact. Thus, the hypothesis put forward is rejected.

Input:		Test statistic:	Std. Error:	p-value:
a	-0.068	Sobel test: -0.03238542	0.22886844	0.97416469
b	0.109	Aroian test: -0.00643291	1.15219952	0.99486732
s <sub>a</sub>	2.072	Goodman test: NaN	NaN	NaN
s <sub>b</sub>	0.545	Reset all	Calculate	

**Figure 5 – Sobel Test for X2 Against Y2 through Y1**

Source: Calculations based on SPSS 25 and Sobel test

Furthermore, from the third indirect effect that highlights the linkage of Government Expenditures to Labor Absorption through Economic Growth by multiplying path X3 - Y1 (a) by path Y1 - Y2 (b) or ab (0.616 x 0.109) and entering the standard error path a ( 0.000) and line b (0.545) is supported by the Sobel test.

	Input:		Test statistic:	Std. Error:	p-value:
a	0.616	Sobel test:	0.2	0.33572	0.84148058
b	0.109	Aroian test:	0.2	0.33572	0.84148058
s <sub>a</sub>	0.000	Goodman test:	0.2	0.33572	0.84148058
s <sub>b</sub>	0.545	Reset all	Calculate		

**Figure 6 – Sobel Test for X3 Against Y2 through Y1**

Source: Calculations based on SPSS 25 and Sobel test

The indirect effect that links Government Spending to Labor Absorption through Economic Growth is described by the path coefficient of 0.067 (positive) and the probability level of 0.841 (sig > 0.10), so it can be confirmed that the results are positive, but not significant. Therefore, the previously proposed hypothesis was also rejected (see 6).

The conclusion that can be drawn from all exogenous variables (investment, education level, and government spending) has no significant effect on labor absorption through economic growth. Thus, economic growth is considered inappropriate to play a role as an intervening variable in the three indirect relationships.

## 5. Discussions and Conclusions

Referring to the investigation between investment, education level, and government spending on economic growth and employment in East Kalimantan Province during 2009-2019, the prediction results are broken down into several vital points.

Direct investment has had a positive and significant effect on economic growth. This fact indicates that capital inflows in the province of East Kalimantan based on foreign investment and domestic investment have had a real impact on driving the entire economic sector, so as to create a conducive climate for the production process and intensify economic growth. The level of education directly has a negative and insignificant effect on economic growth. This fact indicates that the use of the production process in each economic sector is not determined by how well the education background of the population is, given that the current labor market needs are shifting to a direction that tends to prioritize the soft skills of the workforce (skilled, skilled in technology, and abilities in certain fields). Thus, although the level of education is symbolized by an improvement in the average length of schooling of the population, it is not necessarily possible to increase economic productivity. Government spending directly has a positive and significant effect on economic growth. This indicates that the government is here to play a role in improving the welfare of the population through policy interventions on government spending. The allocation of spending that leads to the revitalization of economic sectors that can reach the public, has a double effect for those who are less productive, for example through improving nutrition, education programs, pro-jobs, providing subsidies, and building technical facilities that can be directly felt by the population who have the opportunity feel the quality of that growth.

Direct investment has a positive but insignificant effect on labor absorption. This fact indicates that the flow of investment realization that enters East Kalimantan does not automatically absorb the workforce. Although the results are not significant, this will require a massive long term. Meanwhile, investment, which is still capital intensive, has not fully shifted to labor-intensive considering the need for companies to provide job vacancies needs to establish quality standards or fairly stringent regulations. The level of education directly has a positive and significant effect on labor absorption. This fact indicates that the level of job

opportunity adjusts the requirements of the job seeker to the needs of a certain level of education. If the population who has attended a certain level of school meets the availability of job vacancies, there will be a balance point that is aligned between supply and demand in the labor market. Government spending directly has a negative and insignificant effect on labor absorption. This fact indicates that the implementation of the East Kalimantan government budget posture is not optimal for paying attention to technical programs related to manpower. Currently, East Kalimantan Province is still focusing on things that are physical infrastructure improvements (road infrastructure, bridges, airports, ports, irrigation, and so on). Therefore, the realization of government spending does not directly touch the human development side, especially manpower. Economic growth directly has a positive but insignificant effect on employment. This indicates that the performance of economic growth is not qualified enough to concentrate on developing the level of welfare of the population, such as the addition of labor. Of the 17 business fields, only a few economic sectors can support the workforce. Meanwhile, those that are primary generally excel from the capital-intensive aspects and do not lead to labor-intensive ones that can provide large numbers of jobs.

Investment indirectly has a positive but insignificant effect on employment through economic growth. This indicates that the number of projects from the realization of investment (PMA and PMDN) in foreign companies and state-owned companies does not necessarily require local workers. Given a large number of projects, the company's needs are still focused on using workers from abroad and they occupy positions or positions in upper and middle management, while employees within the regions are still struggling at lower levels of management. The second factor is the effect of the disbursement of economic sectors that develop from investment, predominantly outside the region and foreign, therefore they are not integrated into other labor-intensive-based strategic sectors. The level of education indirectly has a negative and insignificant effect on employment through economic growth. This indicates that the reference for workplaces is now prioritizing workers who have special talents. The talent referred to is based on a certain department that certainly understands the problems in the field and is applicable to be applied to the ongoing production and distribution process. That way, the workers who are excluded do not get a decent wage or below the regional minimum wage (UMR), so that the parity of purchasing power for living needs can be met. Government spending indirectly has a positive but insignificant effect on employment through economic growth. This indicates that the majority of government expenditure still concentrates on indirect types of expenditure such as operational expenditure and personnel expenditure so that it does not directly have a systematic impact on direct activities in a particular policy or program. Even though supporting facilities such as a Vocational Training Center (BLK) are available, it requires trainers who understand very well to answer employment issues, align employee desires with company rules of play, determination of decent wages, and other problems in the context of increasing the capacity and skills of candidates. the workforce and the employees themselves.

Suggestions that can be given by the author need to consider the policy implications for the academic side and the practical side with regard to the main headings of the study, including efforts to spur economic growth in East Kalimantan, an acceleration that is connected between investment activities, attention to education, and government budgeting is necessary. consistent. These three dimensions are vital references so that investment in some companies can consider being labor-intensive so that local workers can be empowered while being given special training and education by the government through certain programs that have been provided and planned by the budget line.

The Government of East Kalimantan establishes manpower policies, especially those related to the creation of job opportunities, compensation, and determination of termination of employment (PHK), work relations, and wages so that overcoming these problems can of course automatically improve the welfare of workers without sacrificing the interests of employers.

It is necessary to focus the allocation of government spending in East Kalimantan in order to accelerate its development. Thus, the hope is to open up potential economic sectors and smoothen the flow of the economy, so as to attract people to do business or independently not depend on formal jobs.

Researchers admit that this study has weaknesses in observation and time series. The objectivity of the observations is only concentrated at the provincial level of East Kalimantan, while the characteristics of the districts/cities are quite diverse and cannot be represented by only one object. This limitation needs to be considered for future studies so that it can also add to the observational data. The next drawback is the use of data processing techniques. It should be noted that path analysis is a model that only looks at causality in one direction, but does not reach a two-way relationship (interrelated). This is a drawback for future improvement.

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