Analysis of Income Inequality in Sulawesi Island

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Abstract— This research aims to analyze the direct and indirect effects of private investment, local government expenditures, and human development index on income inequality through employment opportunities and economic growth in Sulawesi Island. The data used in this study is secondary data obtained from the Central Bureau of Statistics and Capital Investment Coordinating Board. This data is in the form of panel data consisting of data from all provinces on Sulawesi Island from 2011 to 2019. The data analysis method used in this study is path analysis. The results show that private investment and local government expenditures directly have a negative effect on income inequality in Sulawesi Island, while the human development index has a direct positive effect on income inequality in Sulawesi Island. Private investment does not indirectly affect income inequality through employment opportunities in Sulawesi Island, local government expenditure indirectly has a positive effect on income inequality through employment opportunities in Sulawesi Island, and human development index indirectly has a negative effect on income inequality through employment opportunities in Sulawesi Island. Private investment, local government expenditure and human development index indirectly have no effect on income inequality through economic growth in Sulawesi Island.

Keywords— Income Inequality, Economic Growth, Employment Opportunity, Private Investment, Local Government Expenditures and Human Development Index.

INTRODUCTION

Income distribution is one of the important indicators of regional economic development. Good regional economic conditions are not only marked by a fairly rapid increase in economic growth, but also by a better even distribution of income (Sjafrizal, 2016). Unequal distribution of income will trigger income inequality. High inequality illustrates the concentration of control over assets and economic machinery in certain groups, and of course has a detrimental effect in the long term, especially from the aspect of social, political and security stability.

The average gini ratio and economic growth on Sulawesi Island on 2011 to 2019 fluctuated. In 2012, the average economic growth increased as well as the average gini ratio, while in 2019, the average economic growth decreased as well as the average Gini ratio.

Income inequality in several provinces on the island of Sulawesi in the last nine years has been included in the 10 provinces in Indonesia with the highest income inequality.

In 2011, South Sulawesi Province was in first place, Gorontalo Province was in fifth place, then Southeast Sulawesi Province was in seventh place and Central Sulawesi Province was in eighth place with the highest income inequality.

In 2019, Gorontalo Province was in second place, Southeast Sulawesi Province was fourth, then South Sulawesi Province was sixth and North Sulawesi Province was ninth with the highest income inequality.

Kuznets (1955) said that at the early of economic growth, income distribution tends to widening, but at a later phase, income distribution will narrow. In the short term there is a positive correlation between per capita income growth and income inequality, but in the long term the relationship between the economic growth and income inequality becomes a negative correlation. The province's highest average Gini ratio on Sulawesi Island in 2011 to 2019 was Gorontalo Province at 0.417 and South Sulawesi at 0.415. The average Gini ratio for these two provinces is higher than the national average Gini ratio, as well as the average economic growth.

Creating more jobs can reduce income inequality. Creating more formal, entry-level, semi-skilled jobs for the many workers in unproductive jobs would help to address inequality through higher labor incomes for these workers. (World Bank, 2016).

Indonesia's economic performance is inseparable from investment, both foreign direct investment (FDI) and domestic direct investment (DDI) (Kuncoro, 2010). Harrord Domard in (Subandi, 2016) gives a key role to investment in economic growth. investment has an effect on aggregate demand, namely through the creation of income and on aggregate supply through increasing production capacity. In addition, government expenditure is also needed to finance development activities. Government expenditure on providing social and economic overhead creates more jobs. Research by Sodik (2007) found that government expenditure (both development spending and routine spending), had an effect on regional economic growth.

Human resources play an important role in the development of a modern economy, because good human development will be able to innovate and develop existing production factors. According to Solow in Todaro (1998), economic growth stems from three factors, namely the increase and quantity of labor (through population growth and improvement in education), additional capital (through savings and investment) and technology. Research by Samsir and Rahman (2018) found that the human development index has a negative effect on income disparity.

II. LITERATURE RIVIEW

The distribution of income reflects the equal or unequal distribution of the results of a country's development among its population (Machmud, 2016). Inequality is a broader concept than poverty in that it is defined over the entire population, not just for the portion of the population below a certain poverty line (Haughton and Khandker, 2009). Income inequality is the difference in income received by each individual or household which is influenced by the level of productivity.

Kuznets (1955) said that at the early of economic growth, income distribution tends to widening, but at a later phases, income distribution will narrow. It is this observation that has come to be known as the "inverted U" Kuznets curve, because of the longitudinal (time series) change in the income distribution.

Myrdal in Jhingan (2013) argues that economic development results in a circular causal process in which the rich get more and more profits, and those who are left behind are increasingly hampered. The backwash effects tend to be bigger and the spread effects tend to be smaller.

Regional inequality is closely related to the capitalist system which is driven by the profit motive. It is this profit motive that encourages the development of concentrated development in areas with high profit expectations, while other areas remain neglected. The cause of this phenomenon, according to Myrdal, is the free role of market forces, which tend to widen rather than narrow regional inequalities.

Inequality is a result of ethnic heterogeneity, which impacts inequality both directly, since different ethnicities have different skill levels, and indirectly through political channels. Inequality is correlated with dictatorships and with governments that fail to respect property rights (Glaeser, 2005).

The simplest measure of inequality sorts the population from poorest to richest and shows the percentage of

expenditure (or income) attributable to each fifth (quintile) or tenth (decile) of the population. The poorest quintile typically accounts for 6-10 percent of all expenditure, the top quintile for 35-50 percent.

A popular measure of inequality is the Gini coefficient, which ranges from 0 (perfect equality) to 1 (perfect inequality), but is typically in the range of 0.3 to 0.5 for per capita expenditures. The Gini coefficient is derived from the Lorenz curve, which sorts the population from poorest to richest, and shows the cumulative proportion of the population on the horizontal axis and the cumulative proportion of expenditure (or income) on the vertical axis (Haughton and Khandker, 2009).

The Relationship between Private Investment and Income Inequality.

Investment can be defined as the 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, 2013).

Adelman and Morris in Arsyad (2004) argue that one of the causes of the inequality of income distribution is a large investment in capital-intensive projects, so that the percentage of capital income from additional assets is large compared to the percentage of income from work, so unemployment increases. This is different from the results of Hartini's research (2017) that investment has a negative effect on income inequality

The Relationship between Local Government Expenditures and Income Inequality

Underdeveloped countries are characterized by wide gaps in income and welfare. State expenditure tends to narrow the gap. Expenditures on education, public health and medical facilities help build human capital. As a result, the purchasing power of working people can be increased. As soon as economic development progresses through state expenditure, the barriers to upward mobility are removed. Employment is expanding and spreading, providing more jobs to the people and with the acquisition of skills wages tend to increase. Moreover, industrialization tends to increase the role of wages and reduce the role of profits in national income in the long run, narrowing the gap between low and high incomes (Jhingan, 2013).

The Relationship between Human Development Index (HDI) and Income Inequality

The quality of human resources can be seen in terms of education and health. People who have good education and health will have high productivity, so they can increase people's income and prosperity. One way to

reduce inequality is to expand public access to programs that can improve the quality of human resources. According to Castello and Domenech (2002), finding that education inequality is associated with lower investment rates and, consequently, lower income growth. Country that greater inequality in the distribution of education have experienced lower investment rates than countries which showed less inequality. These lower investment rates have in turn meant lower income growth rates. In addition to education, a person's health can be a determinant of inequality. Increased expenses due to illness, reduced number of workers and poor growing conditions for children from poor families generally reduce a person's opportunity to work and access a decent income (Smith, 1999).

Research by Alvan (2007) found that income inequality and human development are negatively correlated and causality runs in both directions. When human development is improved (High Human Development), income distribution tends to be fairer, also when income distribution is more equal, human development tends to improve. On the other hand, medium and low levels of human development tend to increase income inequality.

The Relationship between Private Investment, Employment Opportunities and Income Inequality
Investment activities enable the community to continuously improve economic activities and job opportunities, increase national income and increase the level of community prosperity (Sukirno, 2000).

Investment is able to reduce income inequality if investment in an area increases, this is because investment will create new jobs. With these jobs, the labor force can be absorbed and trigger an increase in people's income, and it is hoped that it will encourage a reduction in the level of income inequality.

The Relationship between Local Government Expenditures, Employment Opportunities and Income Inequality
Government expenditures is a form of fiscal policy by the government in regulating the country's economic activities. One of the objectives of fiscal policy is to increase employment opportunities. Fiscal policy should be aimed at increasing employment opportunities and reducing unemployment or underemployment. For this reason, government expenditures should be directed to the provision of social and economic overheads. Such expenditure creates more jobs and increases the productive efficiency of the economy in the long run (Jhingan, 2013). Increasing employment opportunities and decreasing unemployment not only increase

national income but also increase per capita income. Through this change, the prosperity of the community will increase (Sukirno, 2013).

The Relationship between Human Development Index (HDI), Employment Opportunities and Income Inequality
Underdeveloped countries are faced with two kinds of labor problems. They lack the critical skills needed for the industrial sector and have a surplus labor force. The existence of surplus labor to a certain extent is a result of the scarcity of critical skills. Because these two kinds of problems are interrelated with each other. Human capital formation aims to solve these problems by creating the skills needed by humans as a productive resource and providing them with profitable jobs (Jhingan, 2013).

The human development index plays an important role in the development of the modern economy because good human development will make production factors able to be maximized. A good quality population will be able to innovate to develop the existing production factors.

Research by Leibbrandth et al (2010), found that the labour market is identified as a leading driver of racial inequality in South Africa, since wages appear to comprise an important part of income generation, with the upper deciles making gains in real wages over time and the lower deciles making losses in this department.

The Relationship between Private Investment, Economic Growth and Income Inequality
Investment is one of the elements that determine the economic growth of a region. Therefore, regions that can attract more private investment to their regions will tend to have faster economic growth rates. This condition will certainly be able to encourage the development process through the provision of more jobs and a higher level of per capita income (Sjafrizal, 2014).

Harrord-Domard theory pays attention to the function of capital formation in economic activity. Capital formation is seen as an expenditure that will increase the ability of an economy to produce goods, as well as an expenditure that will increase the effective demand of the whole community, increase production and increase national income.

The increase in production and national income is not determined by the increase in production capacity, but by the increase in public spending. Thus, even though the production capacity increases, national income will only increase and economic growth will be created if

public spending increases compared to the previous period (Sukirno, 2011).

The relationship between growth and inequality according to Kuznets in Perkins et al (2013) is that inequality might first increase as a nation makes the transition from a mostly agricultural economy to an industrial one.

The underlying mechanism for this rise in income inequality is the result of the difference in the returns to factors of production between agriculture (where they are lower and less dispersed) and industry. When everyone works in agriculture, income is distributed relatively equally, but as industrialization and urbanization progress, inequality rises. As more factors make the transition from farm to factory, inequality may then start to fall. Research by Adipuriyanti and Sudibia (2015) found that investment has an indirect effect on inequality in income distribution through economic growth.

The Relationship between Local Government Expenditures, Economic Growth and Income Inequality

Part of government expendiures is to finance government administration and part of it is to finance development activities. Paying the salaries of government employees, financing the education and health systems of the people, financing expenses for the armed forces, and financing various types of infrastructure that are important in development are some of the important areas that will be financed by the government. These expenditures will increase aggregate expenditure and increase the level of state economic activity (Sukirno, 2013).

Research by Sabir, et al (2015) found that local government expenditure has positive and significant effect on economic growth and income inequality. While, economic growth has a negative and significant effect on income inequality.

The Relationship between Human Development Index (HDI), Economic Growth and Income Inequality

Model of employment opportunity
$$Y_{1it} = f(X_{1it}, X_{2it}, X_{3it}) \dots\dots\dots\dots (1)$$

Model of economic growth
$$Y_{2it} = f(X_{1it}, X_{2it}, X_{3it}) \dots\dots\dots\dots (2)$$

Model of income inequality
$$Y_{3it} = f(X_{1it}, X_{2it}, X_{3it}, Y_{1it}, Y_{2it}) \dots\dots (3)$$

From equations (1), (2) and (3), then it is described in several substructure equations as follows:

Research by Eicher and Penalosa (2001) argued that the stock of educated workers in an economy determines both the degree of income inequality and the rate of growth, and that parameters of the demand for and the supply of labor are crucial determinants of whether inequality increases or decreases as an economy accumulates human capital.

The driving force of the model is a production function where the relative productivity of skilled to unskilled labor changes with the rate of technical change. New technologies are in turn generated by skilled workers, which implies that the relative demand for labor, and hence the skill premium, are not monotically decreasing in the stock of skills in the economy.

When we pair this demand functions with a supply of labor function, we find, first, that multiple equilibria are possible, and, second, that as a country accumulates skills, inequality may increase, decrease or follow a U-shaped path. The trajectory followed by a particular country will depend on the direct cost of education, the extent of externalities in the education process, and the elasticity of substitution between skilled and unskilled workers in production.

III. METHODOLOGY

The type of data used in this research is quantitative data. This quantitative data is in the form of panel data, which is a combination of time series and cross section data.

The period of this research is 2011-2019. The cross section data in this study consisted of North Sulawesi Province, Central Sulawesi Province, South Sulawesi Province, Southeast Sulawesi Province, Gorontalo Province and West Sulawesi Province.

The data analysis technique used to discuss the problems in this research is path analysis. Path analysis is a method to determine the direct effect and indirect effect of one variable on other variables.

The equation model of this research can be seen from the following equation:

Equation of the substructure of the employment opportunity model:

$Y_{1it} = \alpha_0 + \alpha_1 \ln X_{1it} + \alpha_2 \ln X_{2it} + \alpha_3 X_{3it} + \mu_{1it}$

$$\text{Ln } Y_{1it} = \ln\alpha_0 + \alpha_1 \ln X_{1it} + \alpha_2 \ln X_{2it} + \alpha_3 X_{3it} + \mu_{1it} \quad\dots\dots\dots\dots\dots\dots\dots\dots\text{ (4)}$$

Equation of substructure of economic growth model:

$$Y_{2it} = \beta_0 + \beta_1 \ln X_{1it} + \beta_2 \ln X_{2it} + \beta_3 X_3 + \mu_{2it} \quad\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{ (5)}$$

Equation of substructure of income inequality model:

$$Y_{3it} = \delta_0 + \delta_1 \ln X_{1it} + \delta_2 \ln X_{2it} + \delta_3 X_{3it} + \delta_4 \ln Y_{1it} + \delta_5 Y_{2it} + \mu_{3it} \quad\dots\dots\dots\text{(6)}$$

The effect of private investment, local government expenditures and the Human Development Index on income inequality through employment opportunities and economic growth by substituting equation (4) and equation (5) into equation (6) can be formulated as follows:

$$Y_{3it} = \delta_0 + \delta_1 \ln X_{1it} + \delta_2 \ln X_{2it} + \delta_3 X_{3it} + \delta_4(\ln\alpha_0 + \alpha_1 \ln X_{1it} + \alpha_2 \ln X_{2it} + \alpha_3 X_{3it} + \mu_{1it}) + \delta_5(\beta_0 + \beta_1 \ln X_{1it} + \beta_2 \ln X_{2it} + \beta_3 X_{3it} + \mu_{2it}) + \mu_{3it}$$

$$Y_{3it} = \delta_0 + \delta_1 \ln X_{1it} + \delta_2 \ln X_{2it} + \delta_3 X_{3it} + \delta_4 \ln\alpha_0 + \delta_4\alpha_1 \ln X_{1it} + + \delta_4\alpha_2 \ln X_{2it} + \delta_4\alpha_3 X_{3it} + \delta_4\mu_{1it} + \delta_5\beta_0 + \delta_5\beta_1 \ln X_{1it} + \delta_5\beta_2 \ln X_{2it} + \delta_5\beta_3 X_{3it} + \delta_5\mu_{2it} + \mu_{3it}$$

$$Y_{3it} = (\delta_0 + \delta_4 \ln\alpha_0 + \delta_5\beta_0) + (\delta_1 + \delta_4\alpha_1 + \delta_5\beta_1) \ln X_{1it} + (\delta_2 + \delta_4\alpha_2 + \delta_5\beta_2) \ln X_{2it} + (\delta_3 + \delta_4\alpha_3 + \delta_5\beta_3) X_{3it} + (\delta_4\mu_{1it} + \delta_5\mu_{2it} + \mu_{3it})$$

$$Y_{3it} = \rho_0 + \rho_1 \ln X_{1it} + \rho_2 \ln X_{2it} + \rho_3 X_{3it} + \mu_{4it} \quad\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{ (7)}$$

Where:

- X_1 = Private Investment
- X_2 = Local Government Expenditure
- X_3 = Human Development Index (HDI)
- Y_1 = Employment Opportunity
- Y_2 = Economic Growth
- Y_3 = Income Inequality

- $\alpha_0, \beta_0, \delta_0, \rho_0$ = Intercept
- $\mu_1, \mu_2, \mu_3, \mu_4$ = *error term*
- i = North Sulawesi Province, Central Sulawesi Province, South Sulawesi Province, Southeast Sulawesi Province, Gorontalo Province and West Sulawesi Province
- t = time series

VI. RESULTS AND DISCUSSION

Table 1: Results of Estimated Direct Effects in Sulawesi Island

HUBUNGAN VARIABEL	KOEFISIEN	SIG.	KETERANGAN
X1 → Y1	-0,040	0,086	Tidak Signifikan
X2 → Y1	1,247	***	Signifikan
X3 → Y1	-0,086	***	Signifikan
X1 → Y2	0,271	0,063	Tidak Signifikan
X2 → Y2	0,400	0,234	Tidak Signifikan
X3 → Y	-0,383	***	Signifikan
X1 → Y2	-0,012	***	Signifikan
X2 → Y2	-0,047	0,010	Signifikan
X3 → Y2	0,009	***	Signifikan
Y1 → Y3	0,047	***	Signifikan
Y2 → Y3	0,001	0,814	Tidak Signifikan

Table 2: Estimated Results of Indirect Effects in Sulawesi Island

			Estimasi	P-value	Keterangan
X1	→	Y3	-0,00188	0,1225342	Not Significant
X2	→	Y3	0,058609	0,0008901	Significant
X3	→	Y3	-0,004042	0,00236485	Significant
X1	→	Y3	0,000271	0,62924438	Not Significant

| **X2** | → | Y3 | 0,0004 | 0,64480503 | Not Significant |
| **X3** | → | Y3 | -0,000383 | 0,61875159 | Not Significant |

The Effect of Private Investment on Income Inequality

Based on the results of data analysis shows that private investment has a negative effect on income inequality. This means that an increase in private investment reduces income inequality in Sulawesi Island. The results of this data analysis are in appropriate with the hypothesis that private investment has a negative effect on income inequality. The results of this research are in appropriate with the results of research by Hartini (2017) that investment has a negative effect on income inequality.

Private investment can reduce income inequality if investment in an area increases. Although private investment in Sulawesi Island has not created a wide range of employment opportunities, investments in economic activities will have an effect on people's incomes due to productive activities.

The Effect of Local Government Expenditures on Income Inequality

Based on the results of data analysis shows that local government expenditure has a negative effect on income inequality. This means that an increase in local government expenditure will reduce income inequality in Sulawesi Island. The results of this data analysis are in appropriate with the hypothesis that local government expenditure has a negative effect on income inequality. The results of this research are in appropriate with the results of research by Fithrian et al (2015), that government expenditure has a negative and significant effect on income inequality.

The impact of government expenditure can expand employment opportunities, provide more jobs to the people and with the acquisition of skills, wages tend to increase and narrow the gap between low and high incomes.

The Effect of Human Development Index (HDI) on Income Inequality

Based on the results of data analysis shows that human development index has a positive effect on income inequality. This means that an increase in human development index will increase income inequality in Sulawesi Island. The results of this research are not in appropriate with the hypothesis that human development index has a negative effect on income inequality. However, the results of this research are in appropriate with the results of research by Didia (2016) which found that the human development index has a positive and significant effect on the level of inequality.

The Human Development Index in each province on Sulawesi Island continues to increase, however, Central Sulawesi Province, Gorontalo Province and West Sulawesi Province have human development achievements that are still in the moderate group, while South Sulawesi Province, North Sulawesi Province and Southeast Sulawesi Province increased from the moderate group to the high group. Income inequality is increasing, allegedly due to the gap in human development between provinces on the island of Sulawesi.

The Effect of Private Investment on Income Inequality Through Employment Opportunities

Based on the results of data analysis shows that private investment has no effect on income inequality through employment opportunities. This means that the increase or decrease in private investment has no effect on income inequality through employment opportunities. The results of this data analysis are not in appropriate with the hypothesis that private investment has a negative effect on income inequality through employment opportunities, but the results of this research are in appropriate with the results found by khomsa (2019) that investment has no significant effect on income inequality.

Private investment fluctuates and is not evenly distributed in each province on the island of Sulawesi. The average percentage of investment on the island of Sulawesi against the national in 2011-2019 is 6.88 percent.

Central Sulawesi Province had the highest average investment among other provinces on Sulawesi Island during 2011-2019. The highest amount of foreign direct investment in Central Sulawesi was in metal industry not machinery and electronic industry sector, while domestic direct investment was mostly in the electricity, gas and water sectors. West Sulawesi Province has the lowest average investment among other provinces in Sulawesi island. The highest amount of foreign direct investment in West Sulawesi during 2011-2019 was in the food crops, plantation and livestock sectors, while domestic direct investment was mostly in the food industry sector.

In general, foreign direct investment in Sulawesi Island during 2011-2019 was mostly found in the metal

industry not machinery and electronic industry sector, chemical and pharmaceutical industry sectors, mining sectors, and the electricity, gas and water sectors. Meanwhile, domestic direct investment is mostly found in the non-metallic mineral industry sector, the electricity, gas and water sector, the food industry sector, the metal industry not machinery and electronic industry sector, and the mining sector.

The number of people working on the island of Sulawesi is mostly in the agriculture, forestry and fishery sector. Private investment has no effect on income inequality through employment opportunities, allegedly because private investment is mostly found in sectors that do not absorb labor.

The Effect of Local Government Expenditures on Income Inequality Through Employment Opportunities

Based on the results of data analysis, it shows that local government expenditure has a positive and significant effect on income inequality through employment opportunities. This means that an increase in local government expenditure will increase income inequality through employment opportunities.

The results of this data analysis are not in appropriate with the hypothesis that local government expenditure will reduce income inequality through employment opportunities, but the results of this research are in appropriate with the results of research by Wahyuni et al (2014) that government expenditure is positively and significantly related to the income inequality of the community. Then, Chrisamba and Saraswati (2016) that government expenditure is positively related to inequality in income distribution.

Local government expenditures in the form of direct spending tend to increase, the Province that has the highest consolidated direct spending at the Province and Regency/City levels in 2011-2019 is South Sulawesi Province.

South Sulawesi province absorbs a lot of labor, but when viewed from the percentage of labor absorption, West Sulawesi has the highest average percentage of labor absorption in that period which is 97.15, then Central Sulawesi is 96.25. The average percentage of employment in Sulawesi Island in 2011-2012 was 95.44.

The province with the highest average growth in the number of working population on Sulawesi Island in 2011-2019 was in Gorontalo Province, at 3.02 percent, then West Sulawesi at 2.60 percent. The business that

absorb the most labor on the island of Sulawesi are agriculture, forestry and fishery.

Local government expenditure tends to increase in every province on the island of Sulawesi, the employment opportunities created by local government expenditure further increase income inequality, allegedly because employment in the agriculture, forestry and fishery sector is higher than other sectors but the income of workers is lower than other sectors.

The Effect of Human Development Index (HDI) on Income Inequality Through Employment Opportunities

Based on the results of data analysis shows that human development index has a negative effect on income inequality through employment opportunities. This means that an increase in human development index will reduce income inequality through employment opportunities. The results of this data analysis are in appropriate with the hypothesis that human development index will reduce income inequality through employment opportunities. The results of this research are in appropriate with the results of research by Hendarmin (2019) that human capital as proxied by the human development index (HDI) has a negative and significant influence on income inequality between regions.

Research by Alvan (2007) conclude that human development is very critical in the matter of reduction in income inequality. To reach higher levels of GDP and per capita income, and lower level of inequality, human development should be given top priority in the development programs particularly in those countries where economic growth is low and income inequality is high. High human development has positive impact on income distribution.

The Effect of Private Investment on Income Inequality Through Economic Growth

Based on the results of data analysis shows that private investment has no effect on income inequality through economic growth. This means that the increase or decrease in private investment has no effect on income inequality through economic growth.

The results of this data analysis are not in appropriate with the hypothesis that private investment has an indirect negative effect on income inequality through economic growth, but the results of this research are in appropriate with the results of research by Laut et al (2020) that foreign direct investment (FDI) and domestic direct investment (DDI) does not have a significant effect on income disparity.

Private investment which consists of domestic direct investment (DDI) and foreign direct investment (FDI) in Sulawesi Island fluctuates and is not evenly distributed in every province on Sulawesi Island. In general, foreign direct investment in Sulawesi Island during 2011-2019 was mostly found in the metal industry not machinery and electronic industry sector, chemical and pharmaceutical industry sectors, mining sectors, and the electricity, gas and water sectors. Meanwhile, domestic direct investment is mostly found in the non-metallic mineral industry sector, the electricity, gas and water sector, the food industry sector, the metal industry not machinery and electronic industry sector, and the mining sector.

Private investment does not have an indirect effect on income inequality because the investment is not optimal in increasing economic growth. economic growth fluctuates and tends to decline, the economy of all provinces on the island of Sulawesi is dominated by agriculture, forestry and fishery.

The Effect of Local Government Expenditures on Income Inequality Through Economic Growth

Based on the results of data analysis shows that local government expenditure has no effect on income inequality through economic growth. this means that an increase or decrease in local government expenditure has no effect on income inequality through economic growth. The results of this data analysis are not in appropriate with the hypothesis that local government expenditure has an indirect negative effect on income inequality through economic growth, but the results of this research are in appropriate with the results of research by Laut et al (2020), that government expenditure has no significant effect on income disparity. The influence of local government expenditure in the form of direct spending does not indirectly affect income inequality. Government expenditure tends to increase, but is not yet optimal in increasing economic growth, this is reflected in economic growth which tends to decline, which has an impact on people's income.

The Effect of Human Development Index (HDI) on Income Inequality Through Economic Growth

Based on the results of data analysis shows that human development index has no effect on income inequality through economic growth. This means that the increase or decrease in human development index has no effect on income inequality through economic growth. The results of this data analysis are not in appropriate with the hypothesis that human development index has an indirect negative effect on income inequality through economic growth, but the results of this research are in

appropriate with the results of research by Rozali (2020) that the human development index has no significant effect on inequality in income distribution.

Human development index has a negative effect on economic growth. Human development index continues to increase, but economic growth tends to decline. An increase in human development index has not been able to increase economic growth. In order for a country's economy to grow rapidly, it must be supported by efficiency in the production process so that it is possible for the economy to produce more optimally (Subandi, 2016). The increase in human development index has no effect on income inequality, because the increase in human development has not contributed optimally to increasing economic growth, which has an impact on people's income.

CONCLUSIONS

Based on the research that has been done, some conclusion can be drawn:

a. Private investment and local government expenditure have a negative effect on income inequality, while human development index has a positive effect on income inequality in Sulawesi Island.
b. Private investment has no effect on income inequality through employment opportunities, local government expenditure has a positive effect on income inequality through employment opportunities, and human development index has a negative effect on income inequality through employment opportunities in Sulawesi Island.
c. Private investment, local government expenditure and human development index have no effect on income inequality through economic growth.

RECOMMENDATION

Based on the results of the discussion and conclusions, some suggestions can be given as follows:

a. Private Investment is expected to be more evenly distributed, especially in sector that absorb a lot of labor so that economic growth increases and income distribution is more even.
b. Local government expenditure is expected to absorb labor from low-income population groups, and be given training to increase competitiveness which has an impact on economic growth so that income distribution can be more evenly distributed.
c. The increase in human development must be accompanied by an increase in employment opportunities, so that income inequality can be more evenly distributed.

d. For further researchers, it is expected to use a longer time period and add other variables.

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