THE EFFECT OF EDUCATIONAL INEQUALITY ON ECONOMIC GROWTH IN INDONESIA

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ABSTRACT

This study aims to examine whether there is educational inequality between regions in Indonesia and whether there is an influence between educational inequality and economic growth. By adding other variables such as poverty rate, population and government spending on education, researchers want to see whether education inequality in Indonesia simultaneously affects economic growth. The hypothesis built is that educational inequality causes economic growth to decline and vice versa. The results obtained show that education inequality exists in Indonesia with data from 34 provinces in Indonesia from 2019 to 2020. The scale of inequality is classified as low to moderate. Furthermore, a panel regression test was performed. From the data, it was found that education inequality had a significant negative effect on economic growth. This means that the higher the educational inequality, the lower the economic growth.

1. INTRODUCTION

Majid and Rochman (2013) explain that education is a process that can change or improve one's knowledge, attitudes and skills. Through education, self-potential can be actively developed so that the necessary intelligence, skills, personality, self-control, religious spiritual strength, and noble character can be possessed by every individual in society (Depdiknas, 2003). The educational process carried out will help the community grow and develop optimally to become independent and responsible individuals in society.

Education plays an important role in the development of human resources (HR). Quality human resources will have a big impact on the level of the country's economy. In much literature, education has long been an important factor in a country's economic growth (Mankiw et al, 1992; Lucas, 1988; Nelson & Phelps, 1966). Hanishek and Woessmann (2010) state that there are at least 3 things that make education get this title. First, education will improve the quality of the workforce which has an impact on increasing productivity and the resulting output. Second, education will increase the capacity for economic innovation and new technologies that drive growth. And third, education can make it easier to understand new emerging knowledge and implement it successfully into reality, which will drive economic growth.

The economy is said to grow if the number of goods and services produced in one year is greater than the previous year. Based on the Sollow theory, the factors that influence economic growth include capital, labor and population. This means that if the population increases, the economy can also grow. Meanwhile, according to Sukirno (2011), the factors that influence economic growth include the division of labor and production scale, technology, capital, natural resources, population, social systems and organizations. Economic growth is measured using the Gross Domestic Product (GDP). GDP is the amount of government production in one year. The calculation of GDP in Indonesia takes into account the following factors: 1) Household Consumption; 2) Investment; 3) Government Consumption; and 4) Export-Import.

As explained above, education is a social elevator, so that a person can improve his welfare in the future. Unfortunately, not everyone has access to education. Inequality in access to education occurs in various parts of the world, both in developed and developing countries. Many young people in Australia do not receive fair treatment to access educational opportunities because of their family background, demographic and geographic characteristics (Bankwest Curtin Economic Center, 2017). In addition, Cheng (2009) states that large educational disparities occur at the primary and secondary education levels.

Many studies have shown that political factors are the most important cause of overall urban-rural inequality in access to education in China. This result was also reinforced by Zheng et.al (2013) and Qian and Smith (2007) who also stated that disparities in access to education in China still exist, especially between urban and rural areas. Furthermore, in Indonesia education inequality does not only occur between rural-urban areas but also in differences in economic status. The higher the economic status, the higher the level of education that can be completed (BPS, 2019). This was also found by Muttaqin (2018) who concluded that a lack of human and financial resources made children drop out of formal schooling. Education disparities also occur between regions in Indonesia. Bhinadi (2003) states that development across regions shows that regions in Java generally develop faster than other regions. In addition, it does not only occur between Java and other islands, inequality in access to education also occurs between urban and rural areas as stated by Vito et.al (2015) and Syaharani and Nurani (2019). Syaharani and Nurani (2019) found that disparities in access to education occur because there are more teachers and schools in urban areas than in rural areas.

Furthermore, difficulties in accessing formal education do not only occur because of the number of schools, but also the adequate transportation and school facilities. Collins (2019) states that formal education is the beginning of the process of social stratification. Education is a high-value commodity as a means of economic success and increases individual social stratification. In addition, Collins (2019) mentions the factors that influence inequality in education, including: 1) Quality of the School Environment - includes the community and environment that support a child to get a good education, 2). Opportunities to Get Quality Education-Limitations in terms of teacher quality, community culture, and easy access to schools also affect whether or not someone's chances of getting quality education are easy, 3). Quality of Graduates-The better the quality of graduates in an area, the greater the opportunity for the area to progress and prosper. 4) Educational Facilities-This includes the availability of educational facilities, teacher-student ratio, and teacher quality. Based on Collins' theory, equality of opportunity to obtain education and educational facilities themselves are an important key that plays a role in community development.

In his writings, Tesfeye (2002) states that a nation with high educational inequality tends to have low innovation and production levels as well as high poverty rates. The low level of production if inequality in higher education is the reason why this research was conducted. The level of production is the embodiment of economic growth so it is hoped that with low educational inequality it can increase

economic growth and vice versa. Nugroho (2014) states that education has a positive effect on economic growth. However, several studies explain that educational inequality has a negative effect on economic growth.

Fauziah (2018) concluded that educational inequality has a significant negative effect on economic growth in South Sulawesi Province. Likewise Riyadi and Ghuzini (2022), Saputra, et al (2015), Bustomi (2012), and Thomas, et.al (2001) also stated the same thing that education inequality has a significant negative effect on economic growth. For this reason, this research was then conducted to examine the existence of educational inequality in Indonesia and to prove whether education inequality in Indonesia has a negative influence on economic growth. This research is expected to be able to answer the importance of equalizing education throughout Indonesia so that people will be more prosperous.

2. THEORETICAL FRAMEWORK

2.1 Economic Growth

Economic growth is an economic activity that can result in increased production of goods and services thereby increasing the prosperity of society (Sukirno, 2011). So that with economic growth it is hoped that people's welfare can increase. The economy is said to be growing if the number of goods and services produced in one year is greater than the previous year. Based on the theory of Sollow, the factors that influence economic growth include capital, labor and population. This means that if the population increases, the economy can also grow.

Meanwhile, according to Sukirno (2011), the factors that influence economic growth include the division of labor and production scale, technology, capital, natural resources, population, social systems and organizations. Economic growth is measured using the Gross Domestic Product (GDP). GDP is the amount of government production in one year. The calculation of GDP in Indonesia takes into account the following factors: 1) Household Consumption; 2) Investment; 3) Government Consumption; and 4) Export-Import.

2.2 Education

Majid and Rochman (2013) explain that education is a process that can change or improve one's knowledge, attitudes and skills. Through education, self-potential can be actively developed so that the necessary intelligence, skills, personality, self-control, religious spiritual strength, and noble character can be possessed by every individual in society (Depdiknas, 2003). The educational process carried out will help the community grow and develop optimally to become independent and responsible individuals in society.

Education plays an important role in the development of human resources (HR). Quality human resources will have a big impact on the level of the country's economy. In much literature, education has long been an important factor in a country's economic growth (Mankiw et al, 1992; Lucas, 1988; Nelson & Phelps, 1966). Hanishek and Woessmann (2010) state that there are at least 3 things that make education get this title. First, education will improve the quality of the workforce which has an impact on increasing productivity and the resulting output. Second, education will increase the capacity for economic innovation and new technologies that drive growth. And third, education can make it easier to understand new emerging knowledge and implement it successfully into reality, which will drive economic growth.

2.3 Poverty

The Central Statistics Agency (BPS) defines poverty as an individual's economic inability to meet basic needs (food and non-food) as measured by the poverty line or GK (BPS, 2022). The Poverty Line (GK) is the minimum expenditure (in rupiah) of an individual in meeting his monthly basic needs consisting of food (equivalent to 2100 kilocalories per individual per day) and non-food needs (clothing, housing, health and education). GK is compiled by the government every year using National Socioeconomic data or known as SUSENAS.

A country's economic growth will have a major effect on poverty reduction (Škare & Družeta, 2016). Rodrik (2000) explains that economic growth goes hand in hand with reducing a country's poverty rate, although the amount of reduction is influenced by conditions and policy packages taken by the government. This can be seen in Pakistan's economic growth where the country's economic growth gradually reduces poverty levels, and education is the key (Afzal et al., 2012).

2.4 Population

Indonesia's population ranks fourth in the world. As of June 30 2022, Indonesia's population was 275,361,267 people or 3.51% of the total human population in the world (Disdukcapil, 2022). Then how does the number of population become a determinant of economic growth? In Sukirno (2011) it is explained that one of the factors that influence economic growth is human resources, both in quality and quantity. So that it can be interpreted that the population, namely human resources in quantity has a positive influence on the economy. The more the population, the more labor and the more household consumption issued.

Based on Darma (2021) states that the population has a positive influence of 93% on economic growth in Tebo Regency. Likewise the results of research by Rukmana (2012) stated that income inequality, inflation and population have a significant positive influence on economic growth in Central Java. Departing from this, the authors added the variable population in this study.

2.5 Government Spending on Education

One component that determines gross domestic product (GDP) is government spending. So that it can be ascertained that government spending has an effect on economic growth where economic growth is calculated based on GDP growth. Anitasari and Soleh (2015) explain that government spending in 7 districts in Bengkulu Province has a positive influence on economic growth.

But what about government spending on education? Saputra, et al (2015), stated that government spending on education has a significant positive influence on economic growth in Aceh Province. However, Bustomi (2012) states that government spending on education actually has a negative influence on economic growth in the Province of the Special Region of Yogyakarta. So, the researcher wants to include a variable of government expenditure in the education sector to see whether it has a positive or negative effect for all provinces in Indonesia.

2.6 Effect of Education Inequality on Economic Growth

Education inequality is the occurrence of a gap between educational conditions that should or are expected with events that occur in the field (Yagami, 2013). It is hoped that there will be equal distribution of education so that people can experience the same quality and quantity of education throughout Indonesia. Based on Tesfeye (2002) there are 4 things that influence educational inequality, namely: 1) family (income, welfare, number of members, parents' education); 2) students (academic ability, health, nutrition and gender); 3) quality of education (student to teacher ratio, number of classes, teacher ability, curriculum and school infrastructure); 4) Education Return Rate. In his writings, Tesfeye (2002) states that a nation with high educational inequality tends to have low innovation and production levels as well as high poverty rates. Education inequality is measured using the Gini Ratio and the Lorenz Curve which will be explained in Chapter III.

The low level of production if there is inequality in higher education is the reason why this research was conducted. The level of production is the embodiment of economic growth so it is hoped that with low educational inequality it can increase economic growth and vice versa. Nugroho (2014) states that education has a positive effect on economic growth. However, several studies explain that educational inequality has a negative effect on economic growth.

Fauziah (2018) concluded that educational inequality has a significant negative effect on economic growth in South Sulawesi Province. Likewise, Riyadi and Ghuzini (2022), Saputra, et al (2015), Bustomi (2012), and Thomas, et.al (2001) also stated the same thing that education inequality has a significant negative effect on economic growth. For this reason, departing from this, the researcher wants to prove whether educational inequality in Indonesia has a positive or negative influence on economic growth in Indonesia.

3. METHODOLOGY

This research uses quantitative research methods. The data source is the origin of the data obtained (Arikunto, 2006). This study uses secondary data. Secondary data is data that has been collected by other people (Sekaran, 2016). Due to data limitations, the data used is data from 34 provinces in Indonesia prior to Law no. 15 of 2022 from 2015 to 2020. The observed data is 204 for 6 years. In addition, data collection uses documentation techniques. Documentation is used to trace historical data. Documentation is intended to obtain data directly from research sites and other places in the form of documents both written and pictures as well as data related to research. In this study, documentation was conducted to collect data on economic growth, population graduating from school, total population, number of poor people from 34 provinces for 6 (six) years, namely 2015 to 2020 from the website www.bps.go.id while government expenditure data provinces in the education sector were obtained from www.djkn.kemenkeu.go.id.

This study modifies the model built by Bustomi (2012) which independent variables and dependent variables are follows:

Dependent Variable

The dependent variable is a variable that is influenced by other variables. In this study economic growth is the dependent variable. The economic growth rate is calculated based on the growth of a certain year's Gross Regional Domestic Product compared to the previous year. Data were obtained from BPS per province for 34 provinces during 2015 to 2020.

Independent Variables

This study uses 4 (four) independent variables where the independent variables are independent variables not influenced by other variables. The independent variables used are:

a. Education Gini Ratio

The Gini Ratio for Education is a number used to see inequality in Education. Todaro (2000) says that the Gini number ranges from 0 to 1. Where 0 indicates that there is perfect equality in the education sector, while 1 there is complete inequality in the education sector. Numbers 0.5 to 0.7 indicate high inequality, while moderate inequality ranges from 0.36 to 0.49. Finally, low inequality is between 0.2 and 0.35. In this study, the author calculated the Gini ratio for education using formula which mentioned by Thomas, et.al (2001):

$$E_L = \left(\frac{1}{\mu}\right) \sum_{i=2}^{4} \sum_{j=1}^{i-1} p_i |y_i - y_j| p_j \qquad (1)$$

In this case:

E_L = Education Lorenz (Education Gini Ratio)

μ = the average school year of the population concerned

p   = The proportion of population i where due to limited data the authors only use i = 1 to 4 with the following explanation:

p1   = Proportion of population having completed primary school

p2   = Proportion of population completed junior high school

p3   = Proportion of population graduating from high school

p4   = Proportion of population graduating from university

y   = length of schooling calculated based on the cumulative average length of time spent by a person at school, which explanation as follow:

y1   = length of time spent for primary school = 6 years

y2   = length of time spent for junior high school = 9 years

y3   = length of time spent for high school = 12 years

y4   = length of time spent for university = 16 years

b. Poverty level

The poverty rate is calculated based on the number of poor people and then it is proportional to the total population for each province.

c. Total population

The real population per province for 6 years from 2015 to 2020. To equalize the data scale, the population data is transformed using natural logarithms.

d. Government Spending on Education Sector

The amount of provincial government expenditure in the education sector per year from 2016 to 2020 in pure rupiah. To equalize the scale of the data, this data is transformed using natural logarithms.

The data analysis is panel data regression. The model built in this study is as follows:

$$PE = a + b\ GP + c\ TK + d\ JP + e\ PP + \varepsilon \qquad (2)$$

PE   = Economic Growth
GP   = Education Gini Ratio
TK   = Poverty Rate
JP   = Total Population
PP   = Government Spending on Education

To estimate the model using panel data regression, we will use Statistical Software, namely STATA 13.6. However, the classic BLUE (Best Linear Unbiased Estimator) assumption is checked first. Checking is done to assess whether the data is normal, homoscedasticity, no autocorrelation and multicollinearity. After checking, it turned out that the data contained autocorrelation, so a panel regression was performed using the GLS to treat the existing autocorrelation.

4. RESULT AND DUSCUSSION

4.1 Education Inequality

After calculating the gini ratio for education as explained in the previous chapter, the results are shown in Figure 1 and Figure 2.

Based on Todaro (2000) that the Gini number ranges from 0 to 1, where 0 indicates that there is perfect equality in the education sector, while 1 there is complete inequality in the education sector. The Gini figure for Indonesia's education ratio, based on Figure 4.2, shows that education inequality still exists in Indonesia. From 2015 to 2018 it shows that the education inequality rate is 0.26 and 0.27. Where this figure can be interpreted that education inequality in Indonesia is still in the category of low inequality. Meanwhile, this figure has moved up in 2019 and 2020 where the inequality rate has changed to moderate inequality. This needs to be watched out by the government where education is the backbone of people's welfare so that high inequality will certainly result in unequal economic development in Indonesia. Meanwhile, the highest educational inequality in 2020 occurred in the Special Province of Yogyakarta while the lowest education inequality occurred in North Kalimantan Province.

4.2 Poverty Rate

Turning to the poverty level, the number of poor people in Indonesia from 2015 to 2019 tends to decrease. This can be seen in Figure 3. However, this figure shot up in 2020 with an additional number of around 3 million people becoming poor people so that in 2020 the number of poor people in Indonesia will be 27,549,700 people. However, when viewed from the poverty rate from 2015 to 2020 the poverty rate ranges from 10 to 11% of the total population of Indonesia. Meanwhile, in 2020, the largest number of poor people will be in Central Java with 4,585,970 and the least in North Kalimantan with 72,050 people or as much as 5% of North Kalimantan's population.

4.3 Government Spending on Education

Government spending on education sector is very important to advance education in Indonesia which will ultimately prosper the community. In 2018 the amount of expenditure in the Education Sector issued by provincial governments in Indonesia reached IDR 100 trillion. Where the greatest spending was spent by the Provincial Government of DKI Jakarta with Rp. 16 trillion and the least was the province of West Sulawesi with Rp. 360 billion.

4.4 Regression Analysis

After checking the classical assumptions of regression and then modeling with Generalized Least Square (GLS), then the selection of the best panel regression model is carried out. There are 3 (three) types of panel regression models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). Testing for the selection of the best model is carried out as follows:

1. Chow test to test CEM and FEM
H0 = accept FEM as the best model
H1 = reject FEM as the best model
The following test results were obtained:

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F( 33,  166) =    1.93
      Prob > F =   0.0039
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Based on the Chow test, the F probability is 0.0039 less than the F table, which is 0.05, so the conclusion is to accept H0 with FEM as the best model.

2. Hausman Test FEM and REM
Then do the Hausman test to select FEM and REM. With:
H0 = accept FEM as the best model
H1 = reject FEM as the best model
The results are as shown in Figure 4.9 where the probability of 0.35 is greater than 0.05, so the conclusion is Ho reject, which means that REM is a better model than FEM.

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Test: Ho:  difference in coefficients not systematic

          chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                =         4.37
          Prob>chi2 =    0.3581
          (V_b-V_B is not positive definite)
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Based on the tests that have been carried out, we use the results of regression analysis with the Random Effect Model as the best model. The following are the regression results obtained. (the detail's shown in Figure 5).

Table 1. Random Effect Model (REM) Result

Variable	Coeffisien	Probability	
Education Inequality (GP)	-10.99	0.006	Significant
Poverty Rate	0.005	0.987	Not Significant
Total Population	0.2	0.536	Not Significant
Government Spending on Education Sector	-0.3	0.156	Not Significant

Source: Processed by author

Based on the regression results, information was obtained that the observations totaled 204, namely 34 provinces for 6 years. The model is statistically significant with a probability of less than 0.05, namely 0.0011. However, the R-square results are quite small, which is only around 7% so that it can be a gap for further research to find the best model with other variables that can increase the degree of R-Square. The built model is as follows:

$$PE = 14,99 - 18\,GP + 0,006\,TK + 0,2\,JP - 0,3\,PP$$

Based on this model, information is obtained that without the variables of education inequality, poverty rate, population and government spending on education, economic growth will continue to grow by 14.99%. This indeed proves that like Sollow's theory there are still other factors that affect economic growth including capital, labor and technology.

Then, in contrast to our initial hypothesis that education inequality has a positive effect on economic growth, education inequality actually has a negative effect. With a probability of 0.006 less than 0.05, it can be concluded that educational inequality has a significant negative effect on economic growth. This study supports research that has been conducted by Bustomi (2012), Saputra, et al (2015), and Thomas, et.al (2001). In their third study, it was revealed that inequality in education had a negative effect on economic growth.

Next is the poverty rate, the poverty rate has a positive influence on economic growth. However, the probability is more than 0.05 so it is not significant so no conclusions can be drawn. Likewise, the population has a positive influence on economic growth. Based on Sukirno (2015) that one that increases economic growth is population growth. Lastly, government spending in the field of education also has a positive effect, although not significant. This is indeed in accordance with the theory of calculating GDP which is influenced by one of them is government consumption.

4.5 Discussion

Based on the results of descriptive statistics and regression analysis that has been carried out, the results obtained are that there is indeed education inequality in Indonesia. This can be seen from the various news that we hear and read everyday in the mass media and on social media as stated by Syahrani and Nurani (2019). Syaharani and Nurani (2019) found that disparities in access to education occur because there are more teachers and schools in urban areas than in rural areas. However, this inequality rate is still classified as moderate to low, ranging from 0.2 to 0.4, where 1 is perfect inequality. Even so, this condition should not make the Indonesian government and regional governments complacent because the inequality rate from 2015 actually rose in 2019 even though it fell slightly in 2020. The government must make every effort to improve education infrastructure both in quantity and quality such as multiplying schools, the number of teachers, school facilities, infrastructure such as roads and bridges that can facilitate access to education. If this is done, it is not impossible that in the next few decades education inequality can become 0 or education equity can be realized.

From the results of the analysis obtained, it turns out that education inequality has a negative influence on economic growth. Although this is not in accordance with the expected theory, some researchers have found the same thing as Bustomi (2012), Saputra, et al (2015), and Thomas, et.al (2001). It is possible that education inequality does not have a direct relationship with economic growth, because economic growth is an increase in the production of goods and services at a certain time. While education cannot be seen for its benefits immediately, it is a long-term investment in the human development index that

will process these goods and services. In the theory of economic growth, Sukirno (2011) explains that the factors that influence economic growth include the division of labor and production scale, technology, capital, natural resources, population, social systems and organizations. It seems clear that the existence of educational equity will affect human resources so that it will indirectly increase economic growth, so education equity is very important to be carried out by the Indonesian government.

In addition, increasing consumption in the education sector to reduce inequality is also very important to directly increase economic growth. An increase in population can also increase economic growth but there are many other problems that will arise with an increase in population which may be discussed in future research. So that the increase in population must also be accompanied by a good quality of life for the community so that it will not become a burden on the government. Lastly, the poverty rate, in this study the results obtained that the poverty rate has a positive influence on economic growth, although not significant. This is of course inversely proportional to the generally accepted theory where poverty will actually reduce economic growth where people do not have the ability to buy production goods so that it will reduce gross domestic product. So it is necessary to do further research either by adding other variables or reducing variables so that the right model is produced.

5. CONCLUSION

There is still inequality in education in Indonesia. This is evidenced by the Gini coefficient value of the education ratio of 0.2 to 0.4, where 1 is perfect inequality. Education inequality has a significant negative effect on economic growth. Although this is not in accordance with the expected theory, some researchers have found the same thing as Bustomi (2012), Saputra, et al (2015), and Thomas, et.al (2001). Government spending on education and population have a positive but not significant effect on economic growth. Increasing consumption in the education sector to reduce inequality is also very important to directly increase economic growth. Furthermore, although an increase in population can increase economic growth, many other problems will arise with an increase in population.

For this reason, the government must continue to make efforts to equalize education, even though in this study educational inequality has a negative effect on economic growth, education indirectly affects the quality of human resources which can affect economic growth. Equitable Education can be done by increasing the quantity and quality of Education. Improvement in quantity by increasing the number of teachers, school facilities, repairing bridge roads that facilitate school access. While quality improvement can be done by increasing teacher capacity and improving school facilities and improving the quality of the internet network. In addition, the government must continue to increase the budget in the education sector because spending on production goods will increase economic growth.

6. LIMITATION

This research is still far from perfect. For this reason, in the future, further research is needed to see the impact of the education gap on economic growth by adding other variables and adding more current and longer data.

REFERENCES

Afzal, M., Malik, M. E., Begum, I., Sarwar, K., & Fatima, H. (2012). Relationship among education, poverty and economic growth in Pakistan: An econometric analysis. *Journal of Elementary Education*, *22*(1), 23-45.

Anitasari, M., & Soleh, A. (2015). Pengaruh pengeluaran pemerintah terhadap pertumbuhan ekonomi di Provinsi Bengkulu. *EKOMBIS REVIEW: Jurnal Ilmiah Ekonomi dan Bisnis*, *3*(2).

Badan Pusat Statistik. (2019). *Potret Pendidikan Indonesia Statistik Pendidikan 2019*. Katalog BPS:4301008. Jakarta: Badan Pusat Statistik.

Badan Pusat Statistik. (2022). Perhitungan dan Analisis Kemiskinan Makro Indonesia 2022. In *bps.go.id* (No. 3205022). Badan Pusat Statistik, Indonesia. https://www.bps.go.id/publication/2022/11/30/041b11a57ce8fe671631f684/penghitungan-dan-analisis-kemiskinan-makro-indonesia-tahun-2022.html

Bankwest Curtin Economic Center. (2017). *Educate Australia Fair? Education Inequality in Australia*. iFocus on the States Series, No.5. Curtin University

Bhinadi, A. (2003). Disparitas Pertumbuhan Ekonomi Jawa dengan Luar Jawa. *Economic Journal of Emerging Market*. Vol.8. No. 1(2003). ISSN 1410-2641

Bustomi, M.J .(2012). Ketimpangan Pendidikan Antar kabupaten/Kota dan Implikasinya di Provinsi Jawa Tengah. *Economics Development Analysis Journal*

Cheng, H. (2009). Inequality in Basic Education in China: A Comprehensive Review. *International Journal of Educational Policies*. Vol. 3(2) pp.81-106. ISSN: 1307-3842.

Collins, R. (2019). *The Credential Society: An Hoistorical Sociology of Education and Stratification*, Newyork: Academic Press.

Darma, B. (2021). Pengaruh Jumlah Penduduk Terhadap Pertumbuhan Ekonomi Kabupaten Tebo Tahun 2016-2020. *Citra Ekonomi*, *2*(1).

Depdiknas (2003):*UU Nomer 20 Tahun 2003 Tentang Sisdiknas,* Jakarta

Dinas Penduduk dan Catatan Sipil. (2022, August 31). *Dukcapil Kemendagri Rilis Data Penduduk Semester I Tahun 2022, Naik 0,54% Dalam Waktu 6 Bulan.* dukcapil.kemendagri.go.id. https://dukcapil.kemendagri.go.id/berita/baca/1396/dukcapil-kemendagri-rilis-data-penduduk-semester-i-tahun-2022-naik-054-dalam-waktu-6-bulan

Hanushek, E. A., & Woessmann, L. (2010). Education and economic growth. *Economics of education*, *60*, 67.

Lucas Jr, R. E. (1988). On the mechanics of economic development. *Journal of monetary economics*, *22*(1), 3-42.

Majid, Abdul dan Rochman, Chaerul. (2013). *Pendekatan Ilmiah Dalam Implementasi Kurikulum 2013*. Bandung: PT Remaja Rosdakarya.

Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A contribution to the empirics of economic growth. *The quarterly journal of economics*, *107*(2), 407-437.

Muttaqin, T. (2018). Determinants of Unequal Access to and Quality of Education in Indonesia. *The Indonesian Journal of Development Planning*. Vol II No.1. ISSN: 2598-0807

Nelson, R. R., & Phelps, E. S. (1966). Investment in humans, technological diffusion, and economic growth. *The American economic review*, *56*(1/2), 69-75.

Nugroho, (2014). *PENGARUH PENDIDIKAN TERHADAP PERTUMBUHAN EKONOMI.* MEDIA EKONOMI DAN MANAJEMEN. Vol. 29 No. 2 Juli 2014

Nur, F. (2018). *Analisis Ketimpangan Pendidikan Terhadap Pertumbuhan Ekonomi Di Provinsi Sulawesi Selatan* (Doctoral dissertation, Universitas Islam Negeri Alauddin Makassar).

Qia, X. & Smyth, R. (2007). Measuring Regional Inequality of Education in China: Widening Coast-Inland Gap or Widening Rural-Urban Gap?. *Journal of International Development 20(2): 132-144*.

Rodrik, D., 2000, 'Growth Versus Poverty Reduction: A Hollow Debate', Finance and Development, December, pp. 8–9.

Riyadi, R., & Ghuzini, D. (2022). Ketimpangan pendidikan dan pendapatan serta pengaruhnya terhadap pertumbuhan ekonomi di daerah tertinggal, terdepan dan terluar (3T). *Jurnal Kependudukan Indonesia*, *16*(2), 139-152.

Rukmana, I. (2012). Pengaruh Disparitas Pendapatan, Jumlah Penduduk Dan Inflasi Terhadap Pertumbuhan Ekonomi Di Jawa Tengah Tahun 1984-2009. *Economics Development Analysis Journal*, *1*(1).

Škare, M., & Družeta, R. P. (2016). Poverty and economic growth: a review. *Technological and Economic development of Economy*, *22*(1), 156-175.

Saputra, D., Syechalad, M. N., & Nasir, M. (2015). ANALISIS KETIMPANGAN PENDIDIKAN TERHADAP PERTUMBUHAN EKONOMI DI PROVINSI ACEH. *Jurnal Ilmu Ekonomi: Program Pascasarjana Unsyiah*, *3*(2).

Sukirno, Sadono. (2011) *Makroekonomi Teori Pengantar*. Rajawali Pers. Jakarta

Syaharani, A.N. and Nurani, F. (2019). *Kesenjangan Mutu Pendidikan Antara Desa dan Kota*.Administrasi Publik FIA Universitas Brawijaya

Thomas, V., Wang, Y., & Fan, X. (2001). *Measuring education inequality: Gini coefficients of education* (Vol. 2525). World Bank Publications.

Vito, B, Krisnani, H. & Resnawaty, R. (2015). *Kesenjangan Pendidikan Desa dan Kota*. Prosiding KS:Riset&PKM. Volume 2. Nomor: 2. Hal. 147-300. ISSN:2442-4480

Zheng, J., Pang, X., Zhang, L., Medina, A., & Rozele, S. (2013). Gender Inequality in Education in China: A Meta Regression Analysis. *Journal of Contemporary Economy Policy*. Volume 32, Issue 2. Pages 474-491.

Figure 1. Indonesia Education Gini Ratio (2015-2020)
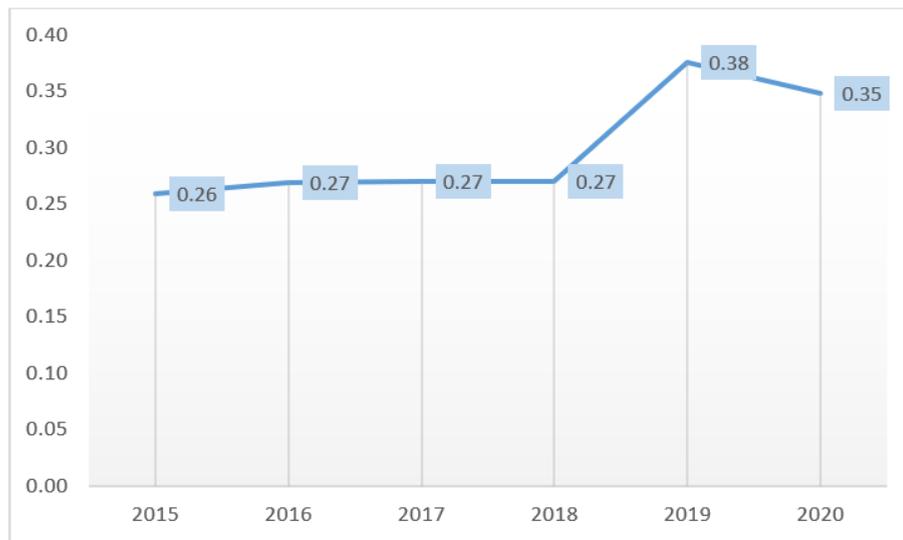
Source: Badan Pusat Statistik, processed by author

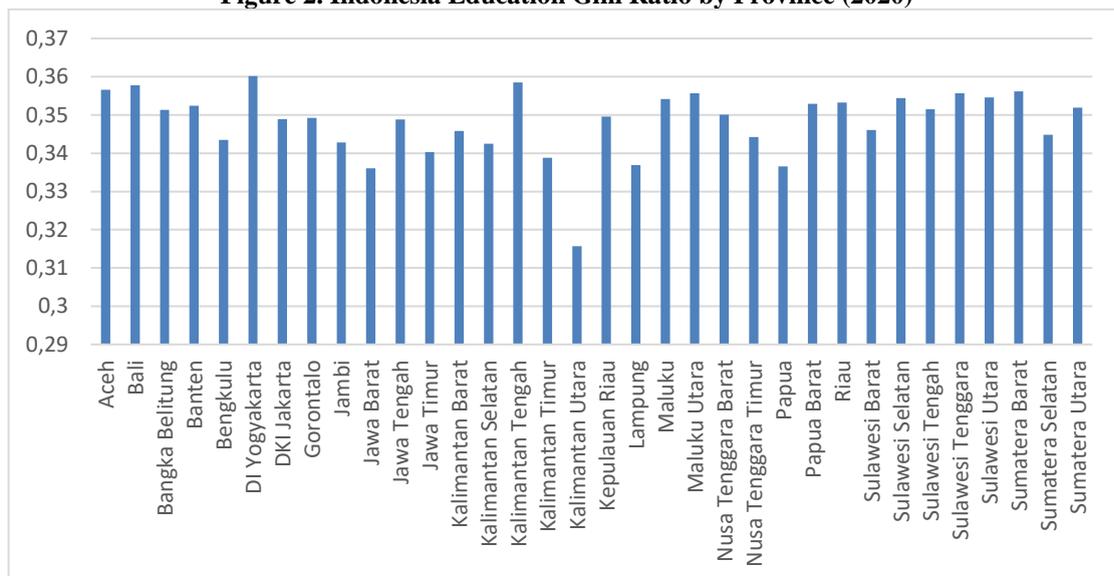**Figure 2. Indonesia Education Gini Ratio by Province (2020)**

Figure 3. Total Poor Population in Indonesia 2015 to 2020 (thousands of people)
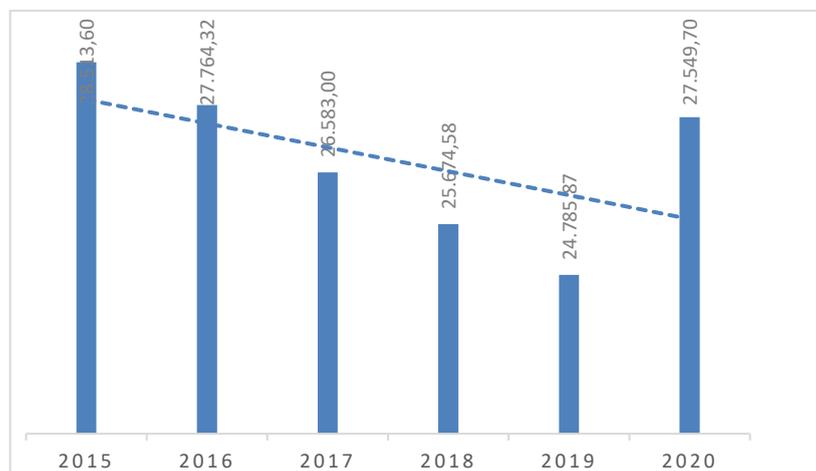
Figure 4. Provincial Government Spending in the Education Sector 2020 (in rupiah)
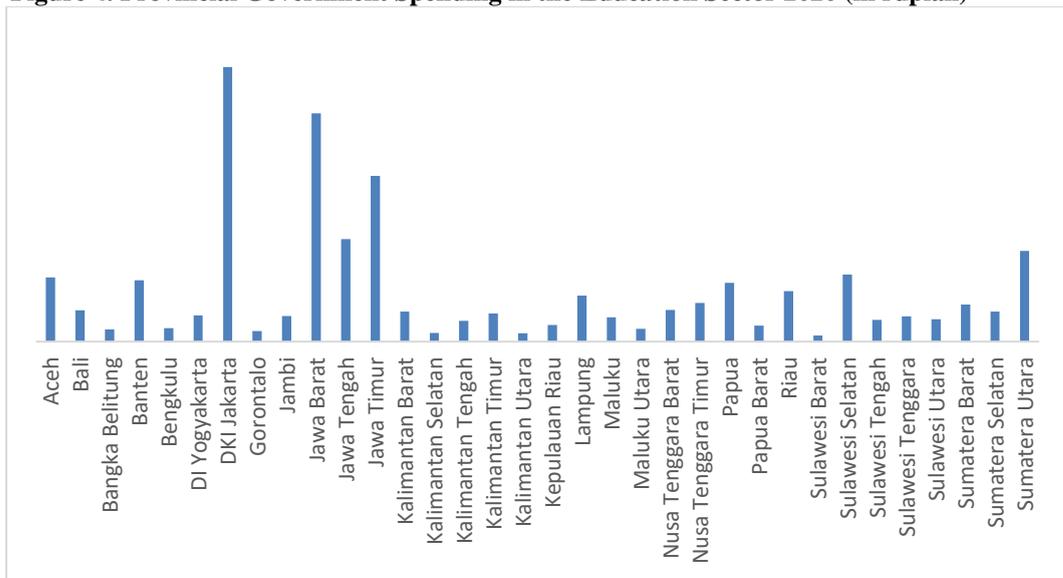

Figure 5 Panel Data Regression Results with REM

```
. xtreg PE GP TK JP PP, re sa

Random-effects GLS regression              Number of obs      =        204
Group variable: Provinsi                   Number of groups   =         34

R-sq:  within  = 0.1084                     Obs per group: min =          6
       between = 0.0246                                    avg =        6.0
       overall = 0.0701                                    max =          6

                                            Wald chi2(4)       =      18.22
corr(u_i, X)   = 0 (assumed)                Prob > chi2        =     0.0011

         PE |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]

         GP |   -18.9962   6.843384    -2.78   0.006    -32.40898   -5.58341
         TK |   .0058785   .3627785     0.02   0.987    -.7051542   .7169113
         JP |   .2001718   .3236785     0.62   0.536    -.4342265   .8345701
         PP |  -.3002588   .2117183    -1.42   0.156     -.715219   .1147015
      _cons |   14.99746   5.694943     2.63   0.008     3.835578   26.15934

    sigma_u |  1.3944328
    sigma_e |  3.9622192
        rho |  .11020655   (fraction of variance due to u_i)
```