ANALYSIS OF DEMOGRAPHIC AND EMPLOYMENT IMPACT ON ECONOMIC GROWTH IN INDONESIA

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Abstract: *Population growth is a major problem being faced by developing countries like Indonesia. The population problem is one of the problems faced by almost all developing countries in the world, especially due to high birth rates. High population growth has an impact on various aspects of life. This study aims to analyze the impact of demography and workforce on economic growth in Indonesia in 2016-2020. The variables in this study consist of Fertility, Mortality, Labor and Economic Growth. The data used in this study is panel data and uses E-views 12 software to analyze data using multiple linear regression. The results of this study indicate that fertility (birth) and labor have a significant and positive effect on Indonesia's economic growth, while other demographics. Mortality (death) is not significant and negative on economic growth in Indonesia*

Keywords: *Economic Growth, Fertility, Mortality, Labor*

Introduction

Every country in the world has a goal to build the country's economy. Economic development is the embodiment of a series of efforts and policies made by the government in a country to improve people's living standards, expand employment opportunities and distribute income for the community. Economic growth is one of the problems of a country's economy in the long term.

Population growth besides being able to encourage economic growth, can also be an obstacle to economic growth. In developed countries population growth is able to increase economic growth because it is supported by high investment and technology, as well as quality human resources.The impact of population growth on development is not the case, because the prevailing conditions are different from the economic conditions of developed countries (http://www.detikinet.com).

The economy in developing countries lacks capital, the use of technology is still relatively simple, lacks skilled labor and so on. Thus, population growth can truly be considered as an obstacle to economic development, where the rapid rate of population growth exacerbates pressure on land and causes unemployment and encourages an increase in the burden of dependency (dependency ratio). As a result, the provision of adequate educational and social facilities is increasingly difficult to fulfill (Todaro, 2011).

In addition to these economic activities, Demographic factors as well affect economic growth. The importance of the position of the population in the process of economics underlies research research to determine the influence of factors on population on economic growth. In Syamsuddin's research (2013), population factors include population growth, labor and ratio of burden of responsibility to economic growth.

Thus population plays an important role in a growth economy. But according to demographers projecting in the 21st century the population is getting bigger and there is no more room to move so modern economic development is hampered.

In 2011 economic growth in Indonesia amounted to 6,17% and continued to decrease until 2015 of 4,88% but in 2016 to 2018 economic growth in Indonesia experienced an increase until it finally decreased again to 5,02% in 2017 and in 2018 it increased by 0,06%. also in 2019 it increased by 0,04% so it became 5,22% (www.bps.go.id).

The Central Bureau of Statistics (BPS) stated Indonesia's economic growth in 2019 would reach 5,02% or slowed compared to economic growth in 2019 of 5,17%. The slowdown was driven by the weakening of the growth of the main trading partner countries, so that the demand for goods to Indonesia is declining. The economic downturn in 2019 was also driven by the slowdown in almost all industrial sectors which became the main source of economic drivers in 2018. The industrial sector in 2018 grew by 19,7% and has a contribution of 19,9% to the Gross Domestic Product (GDP). The trade sector was also only able to grow 4,62% in 2019, after previously in 2018 it grew by 13%. The same is also experienced by the sector agriculture which only grew 3,64% in 2019, compared to 2018 which reached 12,72%. Positive growth was only experienced by the service sector, namely other services and corporate services with growth of 10,55% and 10,25% respectively in 2019, whereas the previous year it was only 1,95% and 1,92%. Besides that, growth occurred in the information and communication sector by 9,42% in 2019, or an increase from 2018 which only grew 3,96%. (www.alinea.id).

According to Donald J. Bogue (1969) Demography is a science study statistically and mathematically, the amount of composition, distribution, population and its changes as a result of the operation of the components of population growth, namely births (Fertility), mortality (death). Marriage, migration and social mobility (Adioetomo, 2010:3). Demographics is therefore a tool for studying population growth, where the change is influenced by the components of population growth such as fertility, mortality and immigration. Fertility is a factor that reduces the number of working people in a region. High fertility results in an uncontrolled increase in population so that it will have an impact on inhibiting development, such as increasing poverty, hunger, unemployment, crime, vulnerability, and environmental damage. Under these conditions, the number of births is reduced, continued and intensified. Therefore, demography can be interpreted as a tool to study population changes, where changes are influenced by the population component (Nasrullah, 2013).

Population is one of the most important elements in a country. Residents are all people who are domiciled in the geographical area of the Republic Indonesia for 6 years or more and or those who domiciled less than 6 months but aim to settle down.

SP2020 records Indonesia's population in September 2020 as 270,20 million people. Since Indonesia has held a Population Census, the first in 1961, the population continues to increase. The results of SP2020 compared to SP2010 show an increase in the population of 32,56 million people or an average of 3,26 million each year. In the period 2010-2020, Indonesia's population growth rate is 1,25 percentage points per year. There is a slowdown in the rate of population growth by 0,24 percent when compared to the rate of population growth in the 2000-2010 period which amounted to 1,49 percent. (www.bps.go.id).

Indonesia's population in 2020 is in the range of 271 million people who mostly inhabit the island of Java. After Java Island is Sumatra, Sulawesi, Kalimantan, Bali and Nusa Tenggara. Papua Island and Archipelago Maluku has the smallest population based on these estimates.

The Central Statistics Agency (BPS) released data on the results of the 2020 population census. Where the total population as of September 2020 was 270,20 million people. The results of the population census show that the total population in Indonesia in September 2020 was 270,2

million people. When compared with previous population censuses, we can see that Indonesia's population continues to increase from time to time due to its land area

Indonesia is 1,9 million km², so the population density reaches 141 people per km². According to him, from 2010 to 2020, the average population growth rate for Indonesia is 1,25% per year. The rate at which this occurs is affected by birth, death and migration rates. Indonesia's population growth rate from period to period experienced a downward trend. One of the reasons is the government's policy to reduce the rate of population growth through the family planning program launched since 1980, the distribution of Indonesia's population in 2020 per island, as many as 151,6 million people or 56.1% of Indonesia's population is in Java. Then 58,6 million people or 21,68% on the island of Sumatra. Then 19,9 million people or 7,36% in Sulawesi, 16,5 million people or 6,15% are in Kalimantan Island. For Bali and Nusa Tenggara as many as 15 million people or 5,54%. Finally Maluku and Papua with 8,6 million people or 3,17% (www.economy.okezone.com).

Population growth is a dynamic balance between forces that add and forces that reduce population. Population growth is caused by four components, namely: births (fertility), deaths (mortality), in-migration and out-migration. The difference between births and deaths is called natural growth (Natural increase) (Mulyadi, 2004).

The high rate of population growth that is occurring in developing countries, such as Indonesia, can hamper the development process. Fertility in Indonesia, the number of births (fertility) of Indonesia's population in 2019 reached 4,4 million people. The movement of the birth rate is relatively stable. The number of births decreased slightly from 2015-2020, after which it began to rise again until 2029. In 2045, the number of births is predicted to be 4,5 million (www.databoks.katadata.co.id).

If the death rate is higher than the birth rate, this means that human resources will decrease in the future. If there are more and more deaths and fewer births, over time the population will continue to decrease to an alarming rate. However, if the birth rate is much higher than the death rate, there will be an increase in population. An increase in population will result in a high population density in a fixed area. This causes the more people, the less natural resources and jobs.

In 1967 the results of SP1971 TFR Indonesia 8 was 5,605 children per woman. Then in 1976 the results of the SP80 TFR Indonesia decreased to 4,680 children per woman or decreased by approx 1,9 percent. In 1986 Indonesia's TFR SP90 results became 3,326 children per woman or down about 3,3 percent. This situation continued until in 1996 the TFR became 2,344 or a decrease of about 3,4 percent, and yields Indonesia's SP2010 TFR experienced a slight increase of around 0,5 percent (www.bps.go.id).

The population in Indonesia, which has been increasing from year to year, especially in the era of Covid-19, has created new problems in society. In fact, the government made this call to support the acceleration of the positive handling of Covid-19, which can speed up breaking the chain of transmission of the virus for which there is no cure. However, the government's policy that people must stay at home has had an impact on increasing the number of pregnant women in Indonesia. The peak of the explosion of cases of mothers giving birth in the area. The number of pregnant women jumped dramatically to 30 percent or between 448,500 - 450,000 people during the Covid-19 pandemic. In 2017, the number of pregnancies was 342,016 people, increased by around 3,000 in 2018, and became 345,016 in 2019. (www.beritasatu.com).

Abundant human resources supported by abundant natural resources are capital for the Indonesian nation to catch up with other more developed and prosperous countries. This can be realized if the management of human resources and natural resources is carried out properly. In the classic Adam Smith theory put forward by Adam Smith (1729-1790) explained that humans

are the main production factor that determines the prosperity of nations besides that in this case also seeing effective human resources is the beginning of economic growth.

Besides that, Indonesia can also achieve a very rapid reduction in mortality (mortality) preceded/marked by development/improvement in the economic field as fast as what happened when European countries experienced a vital transmission process (Mulyadi, 2004). That the number of deaths (mortality) in North Sumatra, or more precisely Medan City, has increased from year to year. It can be seen from UHH in Medan City that every year the Mortality Rate increased in 2016, the Mortality Rate was 72.34%, then in 2020 it increased by 73,14%.

Indonesia projects that Indonesia's population in 2019 will reach 266,9 million people with a composition of 134 million men and 132,8 million women. Meanwhile, the number of deaths (mortality) was 1,6 million in 2019 and will continue to rise to 3,2 million in 2045. The number of births (fertility) of Indonesia's population in 2019 reached 4,4 million people. The movement of the birth rate is relatively stable. The number of births decreased slightly from 2015-2020, after which it began to increase again until 2029. In 2045, the number of births is predicted to be 4,5 million (www.databoks.katadata.co.id).

As a country that is very rich in natural resources, Indonesia's level of prosperity is still far from what was expected. The causative factors are very diverse and complex. However, one of the main causes is the workforce, which, although there are many of them, is still not efficient enough. Employment in Indonesia is still not optimal because it has various problems, including high unemployment rates, a high number of labor force. The level of education and skills of the workforce is low, the distribution of the workforce is uneven.

To provide an overview of employment in the city of Medan, this section will present employment conditions in Indonesia in terms of the working age population, the labor force participation rate (TPAK), and the open unemployment rate (TPT). employment and working hours.

The number of workers who work tends to decrease. It can also be seen in 2019 where the number of workers working has increased and unemployment has increased. This is due to a reduction in working hours and manpower in the city of Medan due to Covid-19 hitting Indonesia.

Problems of the Labor Force and Manpower in Indonesia Development in various sectors carried out by Indonesia urgently requires a workforce that has expertise with certain qualifications. Various job vacancies are open all the time throughout Indonesia, but there are far more job seekers than the available quota. The booming labor force looking for work can be seen in one of the examples reported by policenewscenter.com. In the process it turns out that development is not only faced with limited skilled manpower, but there are still many other problems (www.disnaker.bulelengkab.go.id).

This condition can be seen from the many problems facing employment in Indonesia, including the following:

A. Unbalanced WorkForce with Employment Opportunities A large population will also produce a large workforce. A large workforce if properly utilized will be able to increase economic activity which will ultimately improve people's welfare. However, this can only be achieved if the entire workforce is absorbed by employment opportunities. Job opportunity is a condition that describes the availability of jobs in society. This statement can be seen from the conditions of employment in Indonesia. Indonesia's large population coupled with the high rate of population growth which should be a driving force for increased economic activity has instead become a burden for economic development. However, this high population growth rate was not accompanied by an increase in employment opportunities. This is the main cause of unemployment.

B. Relatively Low Quality of Labor The low level of education is one of the factors affecting the quality of Indonesian workers. Due to the low level of education, the Indonesian workforce is minimal in mastering knowledge and technology. As a result, the amount of production produced is low while the production costs are high. The high cost of production makes it difficult for Indonesian production to compete with products from other countries. In addition, the quality of labor also affects the high and low wages of labor. Labor wages in Indonesia are still relatively low compared to other countries, such as Serbia, China, Russia, Singapore and Malaysia.
C. Uneven Distribution of Workforce In addition to relatively low human resources, the employment sector in Indonesia is also faced with the problem of uneven distribution of workforce. Most of the workforce in Indonesia is on the island of Java. Meanwhile, in other regions with wider territories there is still a shortage of manpower, especially for the agricultural, plantation and forestry sectors. As a result, on the island of Java there is a lot of unemployment. Meanwhile, in other areas there are still many natural resources that have not been optimally managed and utilized.
D. Unemployment The number of the labor force is not proportional to employment opportunities resulting in not all of the labor force being absorbed by employment (unemployment).

Indonesia is the fourth most populous country in the world, it is time for the Indonesian people to prepare themselves to face the peak of the demographic bonus. Demographic Bonus is a phenomenon where the number of productive age population is very large. Recently disclosed by President Jokowi and also data from the BKKBN. This demographic bonus will occur in 2020-2030, the age of the workforce in Indonesia 15-64 years will reach more than 70%, the remaining unproductive age is under the age of 15 years and above 65 years .

But on the other hand, the demographic bonus is like a double-edged sword. Where it could bring bonuses or disaster. The population of productive age is more, so that the labor force will be more abundant causing competition to increase. If they are not armed with qualified skills, they will only be a burden to the country. Therefore, from now on various preparations need to be made so that in the future we can advance the Indonesian nation and not become a burden (www.kompasiana.com).

Of course it is a blessing with an abundance of working age population which will benefit from a development standpoint, especially economic development, which can spur growth to a higher level. The impact is expected to improve the welfare of society as a whole. However, this blessing is likely to turn into a disaster when the arrival of the BONUS is not properly prepared.
There are three main things that must be considered in order to maximize the potential of youth in facing the demographic bonus. These three things are known as 3E (education, employment and engagement). These three are the main things that can encourage the creation of a creative, innovative and productive young generation.

The first is education. Education is a means of creating a quality generation. We as the younger generation are required to be a qualified generation in various fields. Youth who master hard skills, namely the ability to apply a science which Indonesia is lacking, especially in the field of digital technology. That is why Indonesia often uses foreign workers, because the skills of Indonesian workers are not very qualified. As stated by the Ministry of Manpower, that Indonesian undergraduate graduates are not ready to use.

Apart from that, soft skills related to communication, critical thinking, creativity, collaboration, and entrepreneurship are equally important to note. Soft skills are like the mind in the human body that controls the continuity of life. In this case it is related to hard skills.

The second is the labor force. Productive workforce in the era of demographic bonuses is very abundant, therefore to anticipate unemployment, youth are now required to have an entrepreneurial spirit that has a positive impact on society or commonly known as (sociopreneur). Employment is a place to implement the skills obtained from the agency bench.
Next is engagement or participation. Youth participation in 1928 to declare the Youth Pledge was the basis for the emergence of a milestone for the youth struggle until now. The role of youth to participate in advancing this nation is very much needed.

Now is the time for us to take on the role of maximizing the demographic bonus that is in sight. Reviving the spirit of the youth oath through achievements and useful activities. In addition, the role of the government is also very much needed as the driving force behind various sectors for the progress of Indonesia.

However, we must also continue to do similar efforts, improve skills and continue to innovate according to fields and talents. We as youth should not be afraid to become agents of change. Moving together as part of change, through useful activities. Let's participate in welcoming the demographic bonus for a brighter Indonesia. (www.kalaliterasi.com).

Especially with technological innovation, big changes have occurred in the production system to the distribution of goods, even in terms of services as well. So that we can conclude that technology is the main key in today's economic growth and development. It is not surprising then that many countries and private parties allocate their resources for research and development.

To deal with it, we are required to improve our abilities or learn new skills in order to survive in the world of work. Although it has replaced many human jobs, technology has paved the way for job creation. Moreover, the current trend in Indonesia is very promising, namely e-commerce. Thanks to this online job market, it provides more space in the business world for small to medium entrepreneurs (www.its.ac.id).

As is well known, employment is one of the important factors supporting increased economic growth. As already explained by Adam Smith's theory that the higher the number of workers has an effect on the increase in a country's production. Besides that, increased population growth can also affect economic growth through the number of workers that will be easier to obtain and then expand market share so that product demand increases which will encourage economic growth, this was stated by Adam Smith in his classic theory.

Demographic and labor conditions based on Adam Smith's theory illustrate that economic growth can be influenced by these factors. On the basis of this theory, we want to prove whether there is influence and impact of demographic factors (fertility and mortality) and labor on economic growth. Therefore, we will examine the influence of fertility, mortality and labor factors on economic growth in the 2016-2020 Indonesian case study.

Literature Review

One indicator of the success of economic growth can be seen from the rate of economic growth. High economic growth must be paid for by the distribution of income and the distribution of development results evenly. Economic growth is a quantitative measure that describes the development of an economy in a certain year when compared to the actual year (Sadono Surkirno.2006:9).

Economic development is growth coupled with change, meaning that there is no economic development of a country in a given year, not only measured by the increase in production of goods and services that apply from year to year, but also needs to be measured by

other changes that occur in various aspects of economic activity. such as educational development, technological development, health improvement, improvement of available infrastructure (Sadono Surkirno 2006:10)

Population growth is a dynamic balance between the forces that increase and the forces that reduce the population. Population growth in an area is influenced by fertility, mortality and migration. If the fertility rate is greater than the mortality rate, population growth is positive.
The development of the world's population is closely related to the development of human civilization in interaction with the natural surroundings. Over a long period of time, population growth has been very slow. The slow population growth at that time was due to the high mortality rate where almost half of the babies born died before reaching the age of one year, while the rest in the course of life many died from hunger, epidemics and war (Bogue, 1969:53; Mantra, 1985:24).

Population growth is the change in population over time, and can be calculated as the change in the number of individuals in a population. Population growth is influenced by fertility, mortality and migration. Where high fertility rates trigger rapid population growth, and in the long run create a workforce that can help economic growth. If the fertility rate is low, the productive workforce that is expected to help increase economic growth becomes unavailable, and has a negative effect on economic growth (Fitriani, et al, 2012).

Demography comes from the word demos which means population and graphein which means picture. So demography is the study of population or humans, especially about birth, death and population movement. Population studies are studies that discuss the relationship between population change factors and development factors. T. Romlinson (1965) said that population studies explain basic information about population distribution, characteristics and changes in them, as well as explaining the factors that cause these changes and analyzing all the consequences that might occur in the future as a result of these changes. Mantra (2000) said that population studies are broader than pure demographic studies, because in understanding the structure and process of the population in a region, non-demographic factors are involved, for example in understanding fertility in an area it is not enough to know the trend of couples of childbearing age. but also social, economic and cultural factors that exist in the area. In other words, population studies is more interdisciplinary in nature and covers more social, economic, cultural, environmental, political, and biological sciences. Many demographers prefer a population study approach in which the relationship between demographic and non-demographic variables is considered.

According to Kotmanda (2010) citing the opinion of Hatmadji (1981), fertility is the ability of a woman to produce live births. Fertility is the result of real reproduction of a woman or a group of women, while in terms of demography it states the number of live births. According to Ida Bagus Mantra (1985), there are a number of factors that can affect fertility which are differentiated into demographic factors and non-demographic factors. Demographic factors include: age structure or composition, marital status, age at first marriage, personality or fecundity, and the proportion of the population who are married. Non-demographic factors include the economic condition of the population, education level, improvement in the status of women, urbanization and industrialization.

Mortality (death) is one of the three demographic components that can influence population change. Two other components of the demographic process are fertility (birth), and population mobility. The size of death indicates a number or index that is used as a basis for determining the high and low levels of mortality (death) of the population in an area, not only affecting population growth. But it is also a barometer of the level of public health in the area (Mulyadi Subri: 2003).

Economic growth between countries, which coincides with the global economy will trigger the growth of labor competition. Employment is inseparable from the formation of reliable Human Resources, able to compete with foreign workers (Abdurrahman Ritonga et al, 2003).

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Leywis Theory (1959) Which suggests that excess work is an opportunity and not a problem. Excess workers in one sector will contribute to output growth and the provision of workers in other sectors. Thus, according to Leywis, the existence of an excess supply of workers does not pose a problem for economic development. It is better if excess workers are actually capital to accumulate income with the assumption that the movement of workers from the subsistence sector to the modern capitalist sector runs smoothly and the transfer will never become "too many".

The workforce is the population at working age and what is commonly used is the population aged 15 years and over or 15-64 years. It can be said that the workforce is the population that can potentially work. In other words, labor is the total population in a country that can produce goods and services if they want to participate in these activities.

Method

The research method is the steps and procedures used in collecting empirical information to solve problems and test the hypotheses of a study. Based on its purpose, this research includes applied research, namely research that concerns the application of theory to solve certain problems. Based on the method, this research is a comparative causal research, namely research that shows the direction of the relationship between the independent variable and the dependent variable, besides measuring the strength of the relationship.

Result and Discussion

Descriptive Analysis

Economic growth is closely related to economic growth. Economic development will always encourage economic growth and economic growth will facilitate the process of economic development. Of the many indicators of economic growth, one of them is by looking at the development of the Gross Regional Domestic Product (GDP) value of each region. GRDP can describe how each region has the ability to create added value at a certain time.

Population growth is the change in population over time, and can be calculated as the change in the number of individuals in a population using units per time for measurement. Population growth is influenced by fertility, mortality and migration. Where high fertility rates trigger rapid population growth and in the long term create a workforce that can help economic growth (Fitriani, et al, 2012:49).

The state of the population in Indonesia can be seen from the number and rate of population growth in the last 5 years. The total population in Indonesia reached 267,7 people socialcg in 2019, there was a population increase of 32,56 million people compared to the SP2010 results. The increase in population that occurs in Indonesia is a scarcity of natural resources in Indonesia.

Data Description

Development of Fertility, Mortality and Labor Against Economic Growth in Indonesia

Indonesia's economic growth in 2019 failed to exceed or even match economic growth in 2018. Economic growth in 2019 was 5,02 percent lower than in 2018 which reached 5,17 percent. At a time when the government is trying to optimize Indonesia's economic conditions, Covid-19 comes with all its negative impacts. As we now know that the impact of Covid-19 is very influential in all aspects, especially the health and economic conditions of the country. With the existence of Covid-19, it cannot be denied that the Indonesian economy is currently in a condition that is considered "very unstable". (www.komparan.com).

The number of labor force in Indonesia in 2020 is 138,22 million people, an increase of 2,36 million people compared to 2019. In line with the increase in the number of the labor force. However, this was not accompanied by an increase in the labor force participation rate which decreased by 0,15 percentage points to 69,17 percent. This shows a decrease in the supply of labor in Indonesia. Until the end of June 2020, WHO said that globally the number of positive confirmed cases in the world has reached more than 10 million people with social deaths reaching 500 thousand people. This pandemic has caused shocks to the global economy and labor market, as it has not only impacted supply (production of goods and services) but also demand (consumption and investment). Disruptions to supply chains that started in East Asia have spread worldwide, causing both large businesses and micro, small and medium enterprises (MSMEs) to adjust their business operations. As a result, there has been a disruption from the demand side for labor due to the projected decline in economic growth as a result of the COVID-19. The postponement of employee recruitment until termination of employment is carried out as one of the cost efficiency measures taken by employers (www.lpem.org).

Seeing some of the meanings above, it can be concluded that the condition of the Indonesian economy has declined due to the Covid-19 hit Indonesia, this has resulted in increased unemployment and poverty. The influence of the pandemic has resulted in a high rate of population growth due to high birth rates (Fertility) and decreased mortality (Mortality). This high rate of population growth and occurring in a short period of time is what triggers a population explosion.

The population explosion is closely related to increasing poverty, unemployment, crime, slum settlements, hunger and other social problems. An increase in the poverty rate occurs when high population growth is not matched by good economic growth accompanied by income distribution. An increase in unemployment may occur if the population increases, especially the working age population with adequate job opportunities which can lead to an increase in crime cases. If it continues to be sustainable, it will have an impact on the economy in Indonesia, which will decrease due to the impact of Covid-19. This is because the budget used for development that was planned was canceled because the budget had to be diverted to handling Covid-19 in Indonesia. We hope that economic growth in Indonesia will improve again.

Regression Analysis Results

The approach used in this research is to use quantitative methods, using multiple linear regression analysis modeling in this case because researchers will try to explain the relationship between the influence of independent variables in this case Fertility (F), Mortality (M), and Labor (TK), to the dependent variable in this case is economic growth in Indonesia (PE). By using time series data for the 2016-2020 period.

Calculation of the data in this study using the Eviews 10 program which helps in testing the hypothesis testing partially or together.

Model Estimation Results

Table 4.1

Multiple Regression of Economic Growth (PE) Model

Dependent Variable: PE
Method: Panel Least Squares
Date: 12/25/21 Time: 13:00
Sample: 2016 2020
Periods included: 5
Cross-sections included: 35
Total panel (balanced) observations: 175

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-48.15545	14.73066	-3.269063	0.0013
F	-0.123155	0.020028	-6.149186	0.0000
M	0.120936	0.064198	1.883782	0.0613
TK	0.532398	0.138150	3.853751	0.0002

R-squared	0.240692	Mean dependent var	3.922857
Adjusted R-squared	0.227371	S.D. dependent var	3.721284
S.E. of regression	3.270984	Akaike info criterion	5.230650
Sum squared resid	1829.586	Schwarz criterion	5.302988
Log likelihood	-453.6819	Hannan-Quinn criter.	5.259993
F-statistic	18.06834	Durbin-Watson stat	1.826616
Prob(F-statistic)	0.000000		

Source: *E-Views* 12 and processed

The results of the regression above, found the problem that partially there are independent variables that do not significantly influence the dependent variable. There is something that is not significant in the results above, namely M does not negatively affect PE and 2 other variables F and TK have an effect and are significant on the dependent variable PE. However, the regression produces a low R-squared of 0.2406, meaning that the ability of the independent variable to explain the dependent variable is very low and there is no autocorrelation.

Hypothesis Test Results

Determination Coefficient Test (R^2)

R^2 aims to find out how far the variation of the independent variable can properly explain the variation of the dependent variable. The perfect value is one, that is, if the entire independent variation can be fully explained by the variables referred to in the following model, the output results of the determination test (R^2) are as follows:

Table 4.2 Determination Coefficient Test (R^2)

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Prob(F-statistic)	0.000000		

Source: *E-Views* 12 and processed

Determining the value of the coefficient of determination can be measured by the R-Square or Adjusted R-Square value which will be used when there is only one independent variable (commonly called Simple Linear Regression). Meanwhile, Adjusted R-Square is used when there is more than one independent variable.

The value of Adjusted R-Square in the table above is 0.2273, which means that the proportion of the influence of the Fertility, Mortality and Labor variables on the Economic Growth variable is 22.73%. This means that the effect of Fertility, Mortality and Labor on economic growth is 22.73%, while the remaining 77.27% (100% -22.73%) is influenced by other variables that are not included in the regression model, which means that each independent variable has the ability to explain dependent variable is not that high.

Interpretation of Results

From the first data that has been obtained, the regression equation will be analyzed with OLS regression from this study as follows:

$$PE_t = \beta_0 + \beta_1 . f_t + \beta_2 . M_t + \beta_3 . TK_t + \varepsilon_t$$

Then the interpretation of the first model is as follows:

$$PE_t = -48.15545 + \ -0.123155 . f_t + 0.120936 . M_t + 0.532398 . TK_t + \varepsilon_t$$

From the estimation results obtained, an interpretation of the multiple linear regression model can be seen as follows:

- Coefficient β_0 = -48.15545, meaning that this value indicates that fertility (F), mortality (M) and labor (TK) do not change or are constant, so the average economic growth is -48.15545%.
- Coefficient β_0 = -0.23155, meaning that if the Fertility Value (F) increases by 1%, economic growth will decrease by -0.123155%.
- Coefficient β_0 = 0.120936, meaning that if the value of M (mortality) increases by 1%, economic growth will increase by 0.120936%.

- Coefficient β_0 = 0.532398, meaning that if the value of TK (Labor) increases by 1% then economic growth will increase by 0.532398%.

F-Statistics test

The statistical F test is basically meant to prove statistically that all independent variables have a joint effect on the dependent variable, namely economic growth, with a hypothesis to show whether the independent variables referred to in the model have a joint effect on the dependent variable. The following are the results of the F-Statistics test.

Table 4.3 F-Statistics Test

F-Statistic	18.06834
Prob(F-Statistic)	0.0000000

Source: *E-Views* 12 and processed

Based on the results of the F test, it can be seen from the table above, where the Prob. (F-Statistic) of 0.00000 which is less than the significant level of 0.05 so that it can be concluded that the estimated regression model is feasible to use to explain the effect of Fertility, Mortality and Labor on Economic Growth in Indonesia.

T-Statistics Test

The T test is a partial test to determine the partial effect of the independent variables on the dependent variable. The following is the output of the T test.

Table 4.4 T-Statistics Test

Dependent Variable: PE
Method: Panel Least Squares
Date: 12/25/21 Time: 13:00
Sample: 2016 2020
Periods included: 5
Cross-sections included: 35
Total panel (balanced) observations: 175

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-48.15545	14.73066	-3.269063	0.0013
F	-0.123155	0.020028	-6.149186	0.0000
M	0.120936	0.064198	1.883782	0.0613
TK	0.532398	0.138150	3.853751	0.0002

R-squared	0.240692	Mean dependent var	3.922857
Adjusted R-squared	0.227371	S.D. dependent var	3.721284
S.E. of regression	3.270984	Akaike info criterion	5.230650
Sum squared resid	1829.586	Schwarz criterion	5.302988
Log likelihood	-453.6819	Hannan-Quinn criter.	5.259993
F-statistic	18.06834	Durbin-Watson stat	1.826616
Prob(F-statistic)	0.000000		

Source: *E-Views* 12 and processed

Based on the results of the output, it can be partially seen that:

- Prob Value T_{count} of the independent variable F (Fertility) of 0.0000 which is less than 0.05 so that the independent variable F (Fertility) has a positive and significant effect on the dependent variable, namely Economic Growth in Indonesia.
- Prob Value T_{count} of the independent variable M (Mortality) of 0.0613 which is greater than 0.05 so that the independent variable M (Mortality) has a negative and insignificant effect on the dependent variable, namely Economic Growth in Indonesia.
- Prob Value T_{count} of the TK (Labor) independent variable of 0,0002 which is less than 0.05 so that the TK (Labor) independent variable has a positive and significant effect on the dependent variable, namely Economic Growth in Indonesia.

Thus it can be concluded that Mortality and Labor have a significant effect on economic growth in Indonesia while Fertility has no significant and negative effect on economic growth in Indonesia.

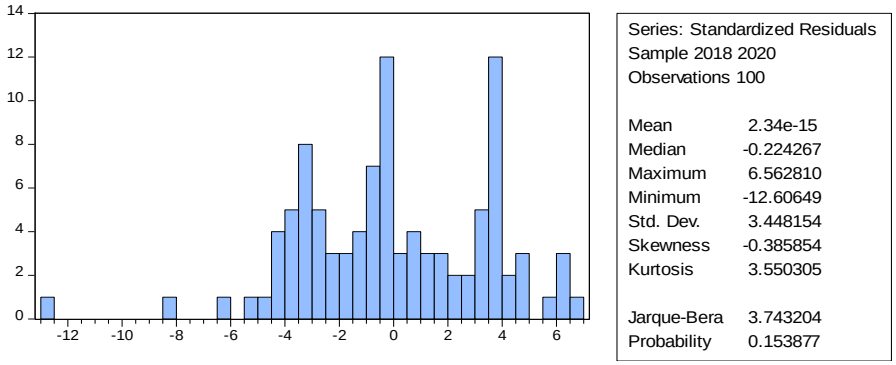
Classical Assumption Test Results

The classical assumption test is one of the conditions that must be met in multiple linear regression analysis. This is because the regression results must be tested first whether they meet the classical assumptions. There are several parts to the classic assumption test, including:

1. Normality Test

The normality test aims to test whether in the regression model, the dependent variable and independent variables are both normally distributed or not. Decisions are made using the Jargue-Bera test or J-B test, namely if the probability value is > 5%, then these variables are normally distributed.

Table. 4.5 Normality Test



Source: *E-Views* 12 and processed

Based on the normality test above, the probability of 0.153877 indicates that the probability is > 5%, so it can be concluded that the data is normally distributed.

2. Multicollinearity Test

The multicollinearity test aims to test whether the regression model found a correlation between the independent variables. A good regression model should not have a correlation between the independent variables. If the variables are correlated with each other, then the variables are not orthogonal. Orthogonal variables are independent variables whose correlation values among independent variables are equal to zero. One way to see that there is no

multicollinearity in a regression model is to look at the *Tolerance* and *Variance Inflation Factor* (VIF) values. That is the magnitude of the statistically justified error rate, as follows:

- If the *Tolerance* value is > 0.10 and VIF < 10, it can be interpreted that there is no multicollinearity in the study.
- If the *Tolerance* value is < 0.10 and VIF > 10, then there is a multicollinearity disorder in the study (Ghozali, 2016)

Table 4.6 Multicollinearity Test

Variance Inflation Factors
Date: 12/25/21 Time: 13:33
Sample: 1 175
Included observations: 175

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	216.9922	3549.159	NA
F	0.000401	21.79543	1.001139
M	0.004121	334.2696	1.041726
TK	0.019086	2810.684	1.040737

Source: *E-Views* 12 and processed

Based on the results above, it can be seen that the Centered VIF value for each research variable is as follows:

- The VIF value on Fertility (F) is 1.001 <10 so that this variable does not occur multicollinearity.
- The VIF value on Mortality (M) is 1.041 <10 so that this variable does not occur multicollinearity.
- The VIF value for Labor (TK) is 1.040 <10 so that this variable does not occur multicollinearly.

From the classical assumptions of linear regression with OLS, a good regression model is a regression model that is free from multicollinearity. So it can be concluded that the above model is free from multicollinearity.

3. Heteroscedasticity Test

Heteroscedasticity means that the residual variation is not the same for all observations. If the variance of the residual of another observation remains, then it is called heteroscedasticity. A good regression model is a regression model that is free from heteroscedasticity.

The decision whether or not heteroscedasticity occurs in the linear regression model is by looking at the Prob value. F-statistics (F_{Count}), if the value of Prob. (F_{Count}) greater than the alpha level of 0.05 (5%) then H0 is accepted, which means that there is no heteroscedasticity, whereas if the Prob. (F_{Count}) smaller than the alpha level then it is rejected which means where heteroscedasticity occurs

Table 4.7 Heteroscedasticity Test

Heteroskedasticity Test: Glejser
Null hypothesis: Homoskedasticity

F-statistic	6.882448	Prob. F(3,171)	0.0002
Obs*R-squared	18.85382	Prob. Chi-Square(3)	0.0003
Scaled explained SS	24.18989	Prob. Chi-Square(3)	0.0000

Source: *E-Views* 12 and processed

Based on the Glejser test, it was found that the Pro.Chi-Square(3) was smaller or equal to 0.0003 than α or 0.5, this indicated that there was no heteroscedasticity. Prob Value From the F Count and Chi-square of all tests the alpha level is greater than 0.5 (5%) so that the hypothesis test, H0 is accepted, meaning that there is no heteroscedasticity.

4. Autocorrelation Test

The autocorrelation test aims to test whether in the linear regression model there is a correlation between the confounding errors in the time or space period and the confounding errors in the previous time or space. To detect this problem, the Durbin-Watson (DW) test can be used.

Table 4.8 Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	3.113980	Prob. F(2,169)	0.0470
Obs*R-squared	6.219858	Prob. Chi-Square(2)	0.0446

Source: *E-Views* 12 and processed

The value of prob.F(2.169) can also be said to be the probability value F Count. Prob (F_{Count}) Value smaller than the alpha level of 0.5 (5%) so that, based on the accepted hypothesis test H_0, it can be said that there is no autocorrelation. Conversely, if the value of Prob. smaller than 05, it can be concluded that there is autocorrelation.

Based on testing with the Godfrey Serial Correlation LM test shows that Prob. The Chi Square (2) is 0.0446, meaning that there is no autocorrelation because it is greater than α = (0.5).

5. Hausman test

To determine the regression model for panel data, a significant test was carried out between the *Fixed Effect* and *Random Effect* models to find out which model is more appropriate to use. Here are the test results.

Table 4.9 Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	23.814865	3	0.0000

Source: *E-Views* 12 and processed

From the results above, you get a Random value of 0.0000. probability value < 0.5 then the selected model is the *Fixed effect*. So it can be concluded that the *fixed effect* model is more appropriate than the *Random Effect* model.

Discussion

1. Effect of Fertility on Economic Growth in Indonesia

From the research results it is known that the variable Fertility has a positive and significant effect on economic growth in Indonesia. This can be seen from the results of multiple linear regression analysis obtained from the Prob value. T_{count} of the independent variable F (Fertility) is 0.0000 and H_a is accepted by H_o and rejected so that the fertility variable can be explained properly although it has a positive effect on economic growth variables in Indonesia.

2. Effect of Mortality on Economic Growth in Indonesia

From the research results it is known that the Mortality variable has a positive and significant effect on economic growth in Indonesia. This can be seen from the results of multiple linear regression analysis obtained from the Prob value. T_{count} of the independent variable M (Mortality) is 0.0613 so that H_o is rejected and H_o is accepted because of the prob level. Greater than the alpha level (0.05). This shows that the government in Indonesia continues to improve health services by making various efforts.

3. The Influence of Manpower on Economic Growth in Indonesia

From the research results it is known that the Labor variable has a positive and significant effect on economic growth in Indonesia. This can be seen from the results of multiple linear regression analysis obtained from the Prob value. T_{count} of the independent variable TK (Labor) is 0.0002 so that H_o is rejected and H_o is accepted because of the prob level. Greater than the alpha level (0.05). So it can be said that the workforce has a significant effect on economic growth in Indonesia. However, even though the workforce has a positive effect, the government still has to improve the skills of the workforce and must improve the quality of human resources, especially the age of the workforce.

Conclusion

Based on the results of the research and discussion described in the previous chapter, the following conclusions can be drawn:

Fertility has a positive and significant influence on growth in Indonesia with a significant value of 0.0000 which is less than 0.5. This shows that if the Fertility variable increases and affects economic growth in Indonesia it will decrease, it will have an impact on population size and high levels of unemployment because not comparable to the existing business fields in Indonesia.

Mortality has a positive and significant influence on economic growth in Indonesia with a significant value of 0.0613 which is less than 0.5. this shows if that mortality increases and affects economic growth. If there is a decline, economic growth will also decline, as a result, the government will find it difficult to provide facilities for the community's needs, such as health facilities.

Workforce has a positive and significant influence on economic growth in Indonesia with a significant value of 0.0008 which is less than 0.05. This shows that labor is very influential on economic growth. If it experiences a decline, economic growth will also decrease, it will have an impact on increasing the poverty rate in Indonesia.

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