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ANALYSIS OF THE EFFECT OF DEMOGRAPHIC DIVIDEND ON ECONOMIC GROWTH IN GORONTALO PROVINCE

[1] Sri Endang Saleh [2]Muh. Alamsyah Yusuf
[1)2)]Economic Development, Fakultas Ekonomi, Universitas Negeri Gorontalo, Indonesia
[2)]Corr. sriendang_s@ung.ac.id

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Abstract:
This study purpose to determine the impact of the demographic dividend (Dependency ratio, labor force participation rate, and total population) on economic growth. The data used is secondary data in the form of data from 5 (five) districts (Boalemo, Pohuwato, Gorontalo Utara, Gorontalo, and Bone Bolango) and Gorontalo City in the 2010-2019 period. Data source BPS (Central Bureau of Statistics) Gorontalo Province. Data analysis is multiple linear regression using panel data.
The results of the analysis show that the ratio dependency variable has a significant positive effect on economic growth. Population growth variable has a negative and significant effect on economic growth. Meanwhile, the labor force participation rate does not affect economic growth. Judging from the simultaneous test, Demographic dividend (Dependency ratio, Labor force participation rate, and population) have a simultaneous effect on economic growth.

Keywords: Demographic Dividend, Economic Growth

INTRODUCTION

The population as the basic capital of development is a central point in realizing sustainable development. A large population with low quality and rapid growth will slow down development goals. A high population growth rate without being balanced with an adequate acceleration of economic growth will cause development problems. Romer (2006) that is while the population of a country grows, the growth rate per capita also increases. The more people there are, the more discoveries there will be and the bigger the market for these inventions will be, and the bigger the numbers on these inventions will be. Thus, a large population in a country does not directly indicate the magnitude of the problems in that country.

In general, population growth is one of the factors that can increase economic growth. Todaro (2004) argues that population growth is an important element that will spur economic development. How population growth can be beneficial for the economy has been stated by Arjoso (2005) that a large increase in population has very broad implications for development programs.

Currently, Indonesia is experiencing a demographic dividend, where the number of people in the labor force age (15-64) is very large to bear the age of the non-labor force, which is smaller in number. Indonesia's dependency ratio is 45.46 per 100 people of productive age (BPS, 2019). This situation will be very beneficial if it can be utilized as well as possible. Indonesia has the potential to increase economic growth during the demographic dividend period, namely by utilizing a large workforce.

Indonesia has enjoyed the Demographic Dividend (demographic dividend) since 2010 and is moving towards the opening of *windows of opportunity* in 2028-2031, but the demographic dividend does not occur simultaneously in all regions in Indonesia. Likewise, Gorontalo Province should now enjoy dividends and take advantage of opportunities.

The results of the 2015-2055 Gorontalo Province Population Projection (BPS, 2018) indicate that the percentage of the young population will continue to decline to 20.8% in 2045. Meanwhile, the percentage of the productive age population is projected to increase to 69.4 in 2020 and then will decrease to 65.7 in 2045. The percentage of the elderly population is projected to continue to increase to 13.5% in 2045. As a result, the age dependency ratio is projected to decline to and reach its lowest point of 44.1 in 2020 and 44, 2 in 2025 and will then increase to 52.1 in 2045. The period when the age dependency ratio decreases is a window of opportunity to reap the demographic dividend in the form of accelerated economic growth. However, it must be accompanied by critical policies to achieve the demographic dividend

Referring to the 2019 BPS data, the population structure of Gorontalo is dominated by the adult and productive population from the 25-64 years old segment which reached 49.82 percent, school children from the 10-24 years old segment reached 26.73 percent, toddlers aged 0-5 years old in the range of 9.41 percent, and the elderly 65-75+ reaching 4.94 percent. The population structure of Gorontalo is known to have a population-based age grouping, which

is interesting in the difference in the number of residents by age group where there is the largest number in the adolescent age group but on the other hand, the number of children under five is also large.

The demographic dividend phenomenon is a component that can explain changes in the number of people, this can be explained by Table 1.1 which states that Gorontalo Province has experienced the demographic dividend.

Table 1.1 Total Population and Dependency Ratio of Gorontalo Province 2015-2019

Tahun	2015	2016	2017	2018	2019
Total population	1,133,237	1.150,765	1.168.190	1,202,631	1,166,142
Man	567,695	576,482	585.21	602.436	583,819
Woman	565.542	574,283	582.98	600,195	582,323
Age 0-14 (M+F)	322,262	323,352	324,749	328,641	295.71
Age 15-64 (M+F)	762,742	776.595	789,909	814,606	808.01
Age 65+ (M+F)	48,233	37,831	53,532	59,384	62.442
Dependency Ratio	48.6	46.5	47.9	47.6	44.3

Source: *Badan Pusat Statistik, 2020*

Based on data that the dependency ratio in 2019 was 44.32 percent, which means that out of 100 productive age residents of Gorontalo, 44.32 percent of the non-productive population will economically bear. This figure explains that the population of Gorontalo Province has entered the window of demographic opportunity to produce more positive output to increase the economic growth of Gorontalo Province. Jones (2001) states that the rate of economic growth is proportional to the size of the population. The model shows that the rate of economic growth depends on the rate of population growth. Rajagukguk (2010) shows in his model that in the long term the economic growth rate is proportional to the population growth rate.

Economic growth is a benchmark for measuring the economic success of a country or province. It is based on the implementation of development, and high economic growth is the main goal of each province. This is because economic growth is closely related to the increase in goods and services produced by the community, so that the more goods and services produced, the welfare of the community increases. It is another case if the production of goods and services has decreased but the increase in community needs tends to increase then this will have an impact on decreasing economic growth. Based on data from the Central Statistics Agency, Gorontalo's economic growth fluctuated from 2010 to 2014 and decreased from 2015 to 2019.

In addition to economic growth, the development of employment figures in Gorontalo will also be seen. The variables shown here are the labor force participation rate (TPAK) and the open unemployment rate (TPT). LFPR is the percentage of the population aged 15 years and over who are in the workforce. The LFPR of Gorontalo Province fluctuated but in general, decreased from 2011 of 69.36% to 2018 of 63.95%. This LFPR is already quite high, which indicates that it is very good for the development of a region because the higher the LFPR, it will encourage economic growth. The discussion about the correlation between population growth and economic growth has become a serious discussion among population economists.

Economic growth theory states that economic growth is influenced by physical capital (investment and capital) and human capital (labor) (Young 1995; Ray 1998). Since the 1990s, demographer economists have begun to include demographic variables in economic growth models to observe the effect of declining fertility, changes in the size of the labor force, and a decrease in the dependency ratio of young people on economic growth (Birdsall et al 2001). For example, Williamson (2001) found that increases in population density and population size and increases in the relative size of the working-age population are positively related to economic growth. With the demographic dividend currently being felt by Gorontalo province, the impact on economic growth will be seen.

RESEARCH METHOD

This research was carried out in Gorontalo Province, by looking at the opportunities for economic improvement in Gorontalo Province seen from the demographic transition and increasing population every year, but the Labour Force Participation Rate is still low. The type of data in this study is secondary data sourced from BPS in Gorontalo Province. This study requires data on Economic Growth, Population Data, and Labour Force Participation Rate in Gorontalo Province from 2010 – 2019. The independent variables are the dependency ratio (X1), Labour Force Participation Rate (X2), Total Population (X3). The dependent variable used in this study is Economic Growth (Y). Data analysis is multiple linear analysis with calculations using panel data. Furthermore, the model testing in this analysis is the statistical test, R-Square, F. Test, and for the Classical Assumption test in this study, namely the normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test.

RESULTS AND DISCUSSION

Research Regression Analysis Results

Based on the estimation using the fixed-effect model, the empirical model obtained is as follows:

Table 4.3 Results of Data Panel Regression

Dependent Variable: EG?
Method: Pooled EGLS (Cross-section SUR)
Sample: 2010 2019
Total pool (balanced) observations: 60
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.455724	0.762675	1.908708	0.0619**
DR?	0.113108	0.011423	9.901584	0.0000***
TPAK?	0.002069	0.005733	0.360945	0.7196^{NS}
LOG(POP?)	-0.189485	0.034504	-5.491677	0.0000***
Fixed Effects (Cross)				
BOALEMO--C	-0.160390			
KABGOR--C	0.266014			
POHUWATO--C	-0.090121			
BONEBOL--C	0.061568			
GORUT--C	-0.672547			
KOTGOR--C	0.595476			

Effects Specification
Cross-section fixed (dummy variables)

Weighted Statistics			
R-squared	0.869876	Mean dependent var	8.171935
Adjusted R-squared	0.849464	S.D. dependent var	30.67585
S.E. of regression	1.049808	Sum squared resid	56.20690
F-statistic	42.61654	Durbin-Watson stat	1.768284
Prob(F-statistic)	0.0000***		

*Note: ***) significant at 1% and **) significant at 5% *) Significant at 10% NS) Not significant*
Source: Processed Results, 2021

Based on the estimation results above, the research model becomes:

$$EG_{it} = 1.455724 + 0.113108DR_{it} + 0.002069TPAK_{it} - 0.189485Log(POP_{it}) + _{it}$$

The explanation of the output of the regression model above can be described as follows:

- Economic growth without being influenced by any independent variables in the research model will be worth 1.455724 Percent
- The dependency ratio has a positive effect on increasing economic growth, meaning that every 1 percent increase in the dependency ratio will increase economic growth by 0.113108 percent.
- The labor force participation rate has a positive effect on increasing economic growth. This means that every 1 percent increase in the labor force participation rate will increase economic growth by 0.002069 percent.
- Population growth harms economic growth. This means that every 1 percent increase in population growth will reduce economic growth by 0.189485 percent.
- Based on the *fixed-effect model* estimation, out of the six regencies/cities throughout the province of Gorontalo, the areas that experienced positive growth were Gorontalo City, Gorontalo Regency, and Bone Bolango. While the areas that have a negative influence on economic growth are North Gorontalo, Boalemo, and Pohuwato Regencies

Classical Assumption Model Validity Test

Multicollinearity- *test*

The test results show that the value of *Centered* VIF of the three independent variables is less than ten (VIV<10) so that in the model there is no symptom of multicollinearity between the independent variables.

Heteroscedasticity Test- *test*

The results of the Heteroscedasticity- *test* show that the independent variables in the study provide a value greater than alpha or the level of confidence used in the study (10%, 5%, and 1%). This means that it can be explained that in the estimation of the research model there is no heteroscedasticity problem.

Autocorrelation-test

It is known that the number of observation data or the value of N = 60 and the number of variables or the value of K = 4. So in the DW table, the value of Du = 1.68891 and the value of DL = 1.47965, while the value of DW in the estimation model above is 1.768284. This means that it can be explained that the regression estimation of the previous model cannot be concluded because the value of DW is between the values of DL and DU

Normality-test

The results of the normality test explained that the value of the probability of JB is greater than the 10% alpha level, which is 0.104399, so the data can be categorized as normally distributed.

The results of testing the research hypothesis, In the F-statistics Simultaneous test, it is known that the coefficient value of the F-$_{Statistic}$ 42.61654 and ρ-S$_{tatistic}$ (0.0000) > α (10%, 5% dan 1%). Therefore, it was decided that the independent variables jointly affect the dependent variable. As for the partial test, the dependency ratio variable and population growth variable have a significant effect on economic growth during 2010-2019 and for the LFPR ratio variable, it has no significant effect on economic growth during 2010-2019. The *Adjusted R-square* coefficient of determination is 86.98%.

DISCUSSION

The Effect of Dependency Ratio on Economic Growth

Based on the results of the analysis, dependency ratio and significant positive effect on economic growth with the coefficient of 0.113108 percent and the valueρ Value-at 0.0000 accepted at the level of 1 percent. This means that every 1 percent increase in the dependency ratio will increase economic growth by 0.113108 percent and the increase can be clearly explained.

The dependency ratio, which is a component of the demographic dividend, the size of which can be seen from the number of productive age in the ratio of 15 to 64 years of age, is certainly closely related to economic growth in terms of increasing business productivity. Things that can cause the dependency ratio of the population to have a positive influence and can clearly explain the decline in economic growth, due to the large number of unproductive children who work in such a way that children of childbearing age earn their income, while unproductive children contribute to Gorontalo province economic growth. Furthermore, the unproductive community in Gorontalo Province dominates the 65-year-old population. The number of people over 65 years old (unproductive) who still have income, with the support of many public and private companies that provide pension payments or pension funds to their pensioners, retirees from these funds can become entrepreneurs from these funds so that they are in the age group as a producer but still contributes to the economic growth of Gorontalo province.

The Effect of Labour Force Participation Rate on Economic Growth

Based on the analytical results obtained, Labour Force Participation Rate and the positive effect was not significant (ρ = 0.7196> α = 0:01, 0:05 and 0.1) on economic growth with the coefficient of 0.002069 percent. This means that every 1 percent increase in the labor force participation rate will increase economic growth by 0.002069 percent but this increase cannot be explained by the labor force participation rate variable.

The labor force participation rate can be measured by the total number of people aged 15 years and over who worked last week (including those who worked and those who did not work for some reason, such as those waiting for harvest or temporary leave). Then divide by the number of workers, then multiply by 100%. In addition, people who do not have jobs but are looking for work are also included in the workforce.

One thing that can explain why the increase in LFPR has a positive impact on Gorontalo's economic growth. The combination of the amount of capital and labor used will produce different levels of output and different levels of efficiency. The labor force participation rate is one of the factors that affect economic output, so people with higher work productivity will produce a high output, which affects GRDP and per capita income. An increase in regional LFPR means that per capita income and consumption levels will affect regional economic growth. An increase in the working-age population means an increase in the labor force, as well as an increase in labor productivity, which will encourage economic growth.

The Effect of Population Growth on Economic Growth

Based on the results of the analysis, population growth and significant negative effect on economic growth with a coefficient of 0.18945 percent with a probability value of 0.0000 so the value is a still smaller probability of α (0:01, 0:05, and 0.1). This means that every 1 percent increase in population growth will decrease economic growth by 0.189485 percent and it can be explained that the increase in the independent variable to the dependent variable can be explained.

Population growth has two distinct roles in economic development, namely in terms of supply and demand. On the demand side, population growth acts as a consumer, and on the supply side, population growth acts as a provider or producer. From these activities, it will increase the volume of absorption of labor, the more people will increase the amount of consumption and supply of goods and services.

Migration, mortality, and fertility are indicators of population growth. High fertility rates encourage rapid population growth. In the long term, if residents acquire good education and skills during long waiting periods, thereby improving the quality of human resources, they can create a workforce that contributes to economic growth. On the other hand, if the fertility rate is low, the productive labor that is expected to help promote economic growth becomes unavailable and can harm economic growth.

CONCLUSION

Based on the results of the analysis and discussion, the following conclusions are drawn; (1) The dependency ratio has a positive and significant effect on economic growth. This means that with every increase in the dependency ratio, economic growth decreases. (3) The labor force participation rate has a positive and significant effect on economic growth. This means that every increase in the labor force participation rate will reduce economic growth. (4) Population growth has a negative and insignificant effect on economic growth. This means that every 1 percent increase in population growth has an impact on a decrease in economic growth, but this decline has not been able to explain clearly.

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