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Article

Analysis of the influence of poverty, human development index, and unemployment on economic growth in the regency/city of Gorontalo Province: 2012–2021 study

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Abstract: The low economic growth of Gorontalo province and the smallest PDRB ADHK in Indonesia are the reasons why this research needs to be carried out to look at the influence of the number of poor people, human development index and unemployment on economic growth in the districts/cities of Gorontolo Province, as a result, there is a mismatch between empirical and theoretical, this research was conducted to fill the information gap on how the three variables influence economic growth, This research was conducted to determine the effect of the number of poor people, the human development index. and unemployment on economic growth, research population data on the number of poor people, HDI, Unemployment, Economic growth, the sampling technique of this research is non-probability sampling, where the full sampling method is applied, Gorontalo Province with six regencies/cities is sampled in this research, with data taken in 2012–2021, the data analysis technique uses panel data regression, with three-panel data model estimates namely CEM, FEM, REM and model selection techniques, Chow test, Hausmant Test and Lagrange multiplie equipped with classical assumption tests and T hypothesis tests and F, the research Finding show that the number of poor people in the Regency/City of Gorontalo Province does not have a significant effect on economic growth in Gorontalo Province. Rice, which is the staple food for the people of Gorontalo, apart from rice, the high level of cigarette consumption among the people of Gorontalo, apparently also has an impact. large impact on the increase in the number of poor people, the human development index in the Regency/City of Gorontalo Province has a significant influence on the economic growth of Gorontalo Province where every increase that occurs in the HDI results in an increase in economic growth in Gorontalo Province, thirdly, the open unemployment rate in the Regency/City of Gorontalo Province does not have a significant effect on the economic growth of Gorontalo Province, conclusion of this research is only HDI affects economic growth in Gorontalo.

Keywords: economic growth; poverty; human development index; unemployment

1. Introduction

Indonesia's economic growth and its status as a developing country are interrelated. Increasing per capita income, or what is known as economic growth, is the long-term key. Even though Indonesia has a lot of human resources, this does not always guarantee effective economic growth and could even pose a risk to continued growth (Bennington and Habir, 2003). Regional economic growth reflects local

economic conditions and is interpreted as an indicator of the welfare of the local population which is expected to continue to increase to support economic development, in the theory of Thomas Robert Malthus, who first expressed his concern about the crisis, explaining that population growth increases geometrically while food production increases arithmetically (Mellor and Johnston, 1984). Despite the declining global trend, the Central Statistics Agency (BPS) shows that Indonesia's economic growth remains strong, reaching 3.69 percent in 2021, an increase from 2.07 percent in 2020. On the other hand, Gorontalo's economic growth is faster, reaching 3.43 percent in the second quarter of 2021. However, this growth is still below the regional and national averages for Sulawesi-Maluku-Papua (Sulampua), which are 8.22 percent and 5.44 percent respectively.

Gorontalo Province's economic growth in 2021 places it in 25th place. Based on data from the Gorontalo Province Central Statistics Agency, the province's economy grew by 2.41 percent, with Gorontalo City experiencing the largest economic growth of 2.81 percent. This increase is related to several positive factors, including the implementation of vaccinations and the 2021 National Economic Recovery Program (PEN). The economy in that year was driven by household needs, government support, investment, and increased exports. Nevertheless, Gorontalo faces challenges in developing its economic growth, especially due to the Covid-19 pandemic which has resulted in a contraction in economic growth in recent years. Some of the problems faced include the low added value of economic productivity due to a lack of skills and capital. Therefore, efforts to increase and optimize the use of natural resources are expected to be an impetus for encouraging economic growth in Gorontalo Province.

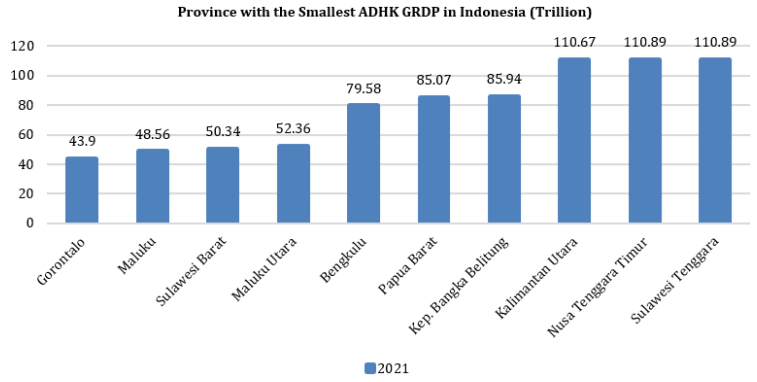

Figure 1. Smallest ADHB GRDP Growth in Indonesian Province in 2021 (Source: Data Word, 2023).

Based on **Figure 1** above, it is known that Gorontalo Province has the lowest GRDP in Indonesia in 2021, amounting to IDR. 43.9 trillion according to BPS. This province's economy grew 2.41 percent compared to the previous year, with differences in the pace of economic development in various regions of Gorontalo, apart from that, Gorontalo Province's Regional Gross Domestic Product (GRDP) was the smallest in Indonesia in 2021, reaching IDR. 43.9 trillion according to the Central Statistics Agency (BPS). This province's economic growth was 2.41 percent compared to the previous year. Shifts in the pace of economic development have been seen over the last ten years, especially with a decline in GRDP in 2015 of 3.38 percent, influenced by commodity seasonality and changes in the industrial sector. In 2020,

Gorontalo Province's GRDP experienced a drastic decline of −0.02 percent, recording the lowest achievement in the last 5 years, related to the impact of the COVID-19 pandemic. However, in 2021, economic growth is expected to improve, supported by vaccination efforts and the government's fiscal stimulus. Nevertheless, the link between population poverty and economic growth highlights the importance of special attention from local governments to ensure the welfare of the population amidst fluctuations and cessation of economic growth (Dauda, 2017).

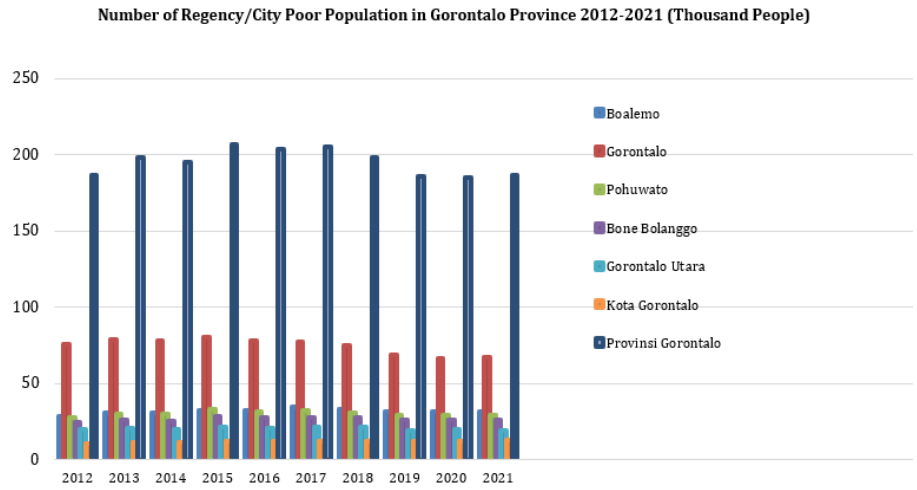

Figure 2. Number of Poor Population in Gorontalo Province 2012-2021(Source: Gorontalo Province Central Statistics Agency, 2023).

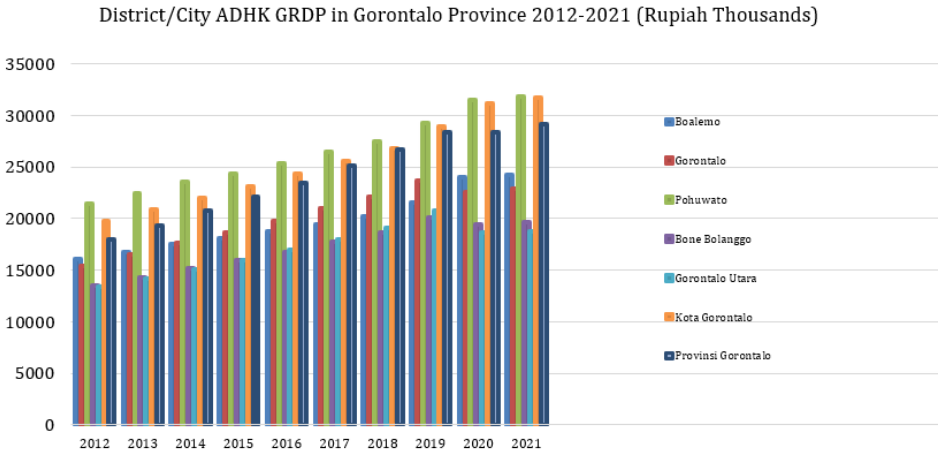

Figure 3. Number of Poor Population in Gorontalo Province 2012-2021(Source: Gorontalo Province Central Statistics Agency, 2023).

It can be seen from the information in **Figures 2** and **3**. The proportion of the population living in poverty is referred to as the "poverty level", while "poor population" refers to the population whose average monthly per capita expenditure is below the poverty line. People who lack the financial means to meet their most basic needs for food and non-food items are also considered poor (Walujadi et al., 2022). It has been proven that in the last ten years, the number of poor people in Gorontalo Province has varied every year, there were 186.29 thousand people in Gorontalo Province in 2021, an increase of 1.27 thousand people from 2020, with the largest

increase occurring in 2015, where there were 11, 74 thousand poor people are more than in 2014 or 206.84 thousand people in 2015. The impact of the COVID-19 pandemic is still very influential in increasing the number of poor people in Gorontalo. However, various social assistance programs have been disbursed by the central, provincial, and district-city governments to be able to reduce the increase in the number of poor people (Rulandari et al., 2022).

Several factors influence the poverty rate in Gorontalo Province. The first factor is rice, which is the staple food of the Gorontalo people. Reaching 25.45 percent (rural) and 21.90 percent (urban). Apart from rice, the high level of cigarette consumption among the people of Gorontalo has also had a major impact on the increase in the number of poor people. Filter kretek cigarettes contribute 15.41 percent to the cause of poverty, or are the second factor causing poverty in Gorontalo. The number of poor people decreased from 2017 to 2020, respectively decreasing by 6.86 thousand people in 2018, 12.48 thousand people in 2019, and 1.01 thousand people in 2020 before increasing again in 2021 reaching 1.27 thousand souls. Two things contribute to poverty reduction, namely, the government's ability to restrain regional inflation and more targeted interventions for poor communities using the National Team for the Acceleration of Poverty Reduction (TNP2K) database (Modjo, 2017). In 2018, the increase in prices of several basic commodities leading to the poverty line was relatively controlled to slow the growth rate of the poor population while maintaining people's purchasing power. Another factor is the farmer's exchange rate (NTP), which has increased so high that the majority of the poor work in the agricultural sector, namely more than 60 percent. Therefore, an increase in NTP can be an indication of an increase in the welfare of poor farmers in Gorontalo (Tupamahu et al., 2023).

This is contrary to Malthus's theory, Malthus argued that the result of population growth was poverty. This is because population growth is much faster than food growth. Overpopulation, as measured by the unemployment rate, lowers wages to such an extent that residents are unable to marry and raise families. Malthus argued that there was no guarantee that quantitative population growth would produce sustainable growth. Quantitative population growth in no way guarantees that real income will grow accordingly. The growth of the poor population only supports the growth of the economic structure if economic growth can increase the real purchasing power of the entire community (effective demand). Efendi et al. (2019) revealed that economic growth has a positive and insignificant influence on Indonesia's poverty level. Taruno (2019) also proves that economic growth and social protection spending do not have a significant influence on reducing poverty rates. Hasan (2021) stated that Indonesia's economic growth, which is around 5%–6% per year, has not been able to reduce the number of poor people. Different findings were revealed by Nansadiqa et al. (2019) that economic growth and unemployment hurt poverty levels in the long term. In addition, there is a two-way Granger causal relationship between poverty and economic growth.

When evaluating other aspects of a country's progress, such as a strong HDI, economic growth is very important. The Human Development Index is a tool for assessing the welfare of the people of a region, which is determined by factors such as achieving improvements in the economic, health, and education sectors. The Gorontalo Provincial Government has worked very hard as the Province's Human

Development Index has increased over the last ten years. Gorontalo Province varies between 2012 and 2021. With growth of 69.00 percent in 2021, an increase from 68.68 percent in 2020, HDI increased in all dimensions in 2021, such as longevity, an increase in the age dimension, with 2015 Gorontalo Province's HDI reaching 65.17 percent, lower than in 2014 which was at 71.77 percent. The decline in HDI is the impact of the decline in components that form the HDI. Meanwhile, in 2014 and 2015, the HDI decreased in Bone Bolanggo Regency and North Gorontalo Regency from 66.03 percent to 61.92 percent or decreased by 9.8 percent in 2014 and 66.83 percent to 62.55 percent or decreased by 4. 28 percent, a condition confirmed by the service.

Contrary to Malthusian theory, less standardization of living hurts development. The concept of human development shows human progress or society's ability to meet life's needs, both physical and non-physical needs.

The study by Taqi et al. (2021) and Elistia and Syahzuni (2018) show that each country has a strong correlation between HDI and GDP. Economic growth makes it possible to achieve a high level of human development, on the one hand, an increase in the level of human development causes an increase in opportunities for economic growth. Hakim et al. (2021) revealed that GRDP has a significant positive effect on the Human Development Index. Abraham and Ahmed (2011) show different findings that economic growth has a negative short-term relationship with the human development index, but the results are not significant. However, the long-term relationship coefficient is quite significant. This study concludes that policies aimed at accelerating growth will hurt human development in the short term, but in the long term, balance will be restored by adjusting the HDI to correct the balance error.

One of the things that hinders economic growth is unemployment. Unemployment is a condition where someone wants to get a job in the labor market but has not yet gotten it. The economy is often hampered by unemployment due to waste of resources and lower income and output when the economy is stimulated. Lower incomes lead to poverty and other social problems (Vizano et al., 2021). The open unemployment rate over the last ten years has varied, as shown in the picture above, from 2016 to 2017 there was an increase in unemployment in Gorontalo Province by 1.5 percent or increased from 2.76 percent to 4.28 percent. If we look at the levels, it is clear that the open unemployment rate in Gorontalo is highest at the secondary education level (junior high school and high school) which reaches 8.54 percent, next at the tertiary level the TPT reaches 4.46 percent, while the TPT is at elementary school and below. It is only around 1.42 percent, which means that most of the unemployed in Gorontalo have secondary and tertiary degrees. People with low education are usually willing to take any job to meet their daily needs. In other words, this situation indirectly shows that the workers accepted in Gorontalo still have a low level of education. While there was a decline in 2021 from 2020 of 1.27 percent or down from 4.28 percent to 3.01 percent, the COVID-19 pandemic still had an impact on working conditions in 2021, although not as badly as in 2020. In general, the population affected by the COVID-19 pandemic ranges from unemployed to inactive. This reduces working time for the temporarily unemployed by 5.64 percent or 50,734 people. This number decreased by 7.58 percent compared to conditions in 2020, where 13.22 percent of the working population was infected with COVID-19, namely no less than 118,192 people.

This is contrary to Malthus's theory, namely, population growth only supports economic structure growth if economic growth can increase the real purchasing power of the entire community (effective demand). Only then, under such conditions, will capital accumulation be realized as a fundamental feature of the growth process, and at the same time will increase the demand for labor. If wages exceed living standards, the population increases. Conversely, these conditions result in high mortality and population decline when wages fall below subsistence levels. Only when wages are at the subsistence level does the population balance out? Malthus believed that the working class determined the rise and fall of the economic structure. Research from Sadiku et al. (2015) does not show strong evidence and does not confirm the existence of an inverse relationship between unemployment rates and economic growth. Chand et al. (2017) on the other hand revealed that there is a strong negative correlation between economic growth and unemployment rates. In addition, it was found that GDP contributed 48% of the causes of changes in the unemployment rate.

The contribution of this research is to provide in-depth information and analysis on Gorontalo Province, which in the last ten years has experienced fluctuations in economic growth. factors that are considered to influence economic growth that occurs each year, by looking at how poverty, human development index, and unemployment can influence economic growth in accelerating economic growth in Gorontalo. These findings are useful for local governments and decision-makers, the resulting information can be used to design policies to increase regional economic growth and can help to inform the existence of governments, non-governmental organizations (NGOs), and financial institutions and then allocate resources more efficiently, such as providing special loans or grants to increase people's income based on identified factors that influence economic growth, are encouraged so that stakeholders develop priority programs oriented towards increasing the shape of the human development index, such as education and health programs and increasing human resource capacity programs for alleviation of possibilities.

2. Literature review

2.1. Thomas Robert Malthus's classical economic growth theory

According to Thomas Robert Malthus, of course, the population will continue to experience rapid growth, with food production increasing in number (Brown et al., 2014). Malthus argued that there is no guarantee of quantitative population growth, with subsequent growth. Malthus explained several factors that limited continued growth. Quantitative population growth in no way guarantees that real income will grow accordingly. Population growth only supports economic structure growth if economic growth can increase the real purchasing power of the entire community (effective demand). Only then, under such conditions, will capital accumulation be realized as a basic characteristic. Malthus expressed this development in his theory, namely stating the inability to consume enough (theory of underconsumption).

Malthus identified the institutional realities of society's economic structure as a major obstacle to human progress. The backwardness and poverty of the population in these countries are not due to a lack of fertile land or a reduction in land due to population growth, or due to the "laziness" of the population. Poverty refers to the fact

that large tracts of land are controlled by a handful of the upper strata of society, consisting of several land-owning families. Such centralization of control and ownership of land does not at all encourage farmers to seek progress through increased production, let alone investment. This is because most of the country's production benefits land owners, while the production of small communities (weak classes) tends to meet basic needs and only a small portion is invested. To what extent has this decline occurred? Malthus argued that population pressure would push the economy to the point where the labor force would reach subsistence levels. If wages exceed living standards, the population increases. Conversely, these conditions result in high mortality and population decline when wages fall below subsistence levels. Only when wages are at the subsistence level does the population balance out? Malthus believed that the working class determined the rise and fall of the economic structure.

2.2. Poverty theory

The idea of a vicious circle of poverty, which asserts that "a poor country is poor because it is poor" was put forward by Ragnar Nurkse (Rodliyah, 2023). Low output is the result of underdevelopment, market weakness, and lack of resources. Low output means low income, low income will impact little investment and reserves. An individual, group, community, or even an entire nation can be constrained by poverty that makes life difficult, affects a person's ability to negotiate favorable terms in international negotiations, results in the death of generations, and has dire consequences for the future of the country, this description provides a comprehensive view about poverty. Poor people report experiencing pain in their daily lives more often and almost always feel uncomfortable because they cannot compare their situation with those around them, they are always on the periphery in all areas (Narayan et al., 2020). Limited human resources (HR) can refer to the physical position or location of a geographical area as well as the quality of human resources, such as skills, education, and expertise (Silitonga et al., 2020). Poverty can also be caused by natural characteristics, characteristics resulting from the behavior of a person or a person, and characteristics arising from the behavior of a person or place (Gweshengwe and Hassan, 2020). It is remote and challenging to reach, making it difficult to communicate with more sophisticated residents.

There are two types of poverty, namely, absolute poverty and relative poverty. A person is considered to be in absolute poverty if they cannot fulfill even the most basic needs, such as the need for shelter, food, clothing, and education. Minimum essential requirements as a monetary benchmark, because development strategies have not been able to spread to every level of society, resulting in unequal allocation of money, relative poverty is a bad situation. Minimum criteria are set based on the country's living conditions at the time and consideration paid to the "poorest" segments of the population, such as the bottom 20 percent or 40 percent of the overall population when divided by income/expenditure. This group is a relatively poor population. Therefore, the distribution of population income/expenditure can influence the relative poverty measure.

2.3. Human development index theory

According to Rostow and Musgrave's theory, the human development index has a crucial role in economic development through education and health, because adequate education and health will enable production factors to be maximized. Large human development causes an increase in population which will increase consumption levels. The value of the human development index is influenced by government policies in human development seen from the government budget and the realization of that budget. This will make it easier to increase economic growth.

Human capital is defined as self-control and all inherent capacities to complete well-being in a durable and orderly manner (Kell et al., 2018). Human resources are the wealth that humans have within themselves to realize their potential as adaptable and sociable creatures. The main metric for assessing growth success is the human development index (HDI). The areas that receive the most attention to increase the human development index are improving education standards, improving health, and improving household economic levels. These three elements are interconnected. The human development index is an assessment of the living standards of the world's nations, school proficiency, and lifespan. The HDI is used to categorize countries as established, emerging, or undeveloped as well as to assess how economic capabilities affect quality of life. HDI, which can influence greater output in businesses and cause them to use more labor, can be used to evaluate the welfare of human resources according to Keynes' theory.

2.4. Unemployment theory

According to Keynesian theory, poor aggregate demand is what ultimately causes reaction problems, so low spending rather than low output is the cause of slowing economic development (Fazzari, 1994). Keynes argued that an open market system could not handle this. When the labor force grows, wages fall, it is neither useful nor profitable because falling wages means people have less money to spend on products. Manufacturers will ultimately incur costs and will not be able to accommodate workers. Unemployed include those who are looking for work, have plans to open a business, decide not to look for work because it is difficult to find work and those who have jobs but have not yet started working. Keynes advocated government action to keep collective demand stable so that the tourism industry could generate jobs. People with low HDI have lower purchasing power, which reduces output in business and does not assimilate the current workforce, causing an increase because the demand and supply of labor never match (Mahroji and Nurkhasanah, 2019).

2.5. The relationship between poverty and economic growth

Poverty levels and economic growth are indicators of the success or wealth of a region. Each region will make every effort to maximize economic development and fight poverty. Economic development and poverty alleviation are closely linked, and in theory, economic growth is a prerequisite for ending poverty. A high level of poverty will make implementing economic development more expensive, which will tangentially hinder economic development. Fosu's (2017) study states that economic growth is the main factor behind reducing or increasing poverty, but inequality plays

an important role in poverty behavior in many countries. Dada and Fanowopo (2020) also revealed that poverty alleviation in the short and long term has a positive impact on economic growth.

2.6. The relationship between the human development index and economic growth

One issue that often hampers economic development is the Human Development Index which sometimes declines. One sign of development that can support economic progress is human development. The Human Growth Index combines education, health, and real income per individual to assess a country's socioeconomic growth. The newly presented Human Development Index continues to be based on health, education, and living conditions. Health, education, and personal development are important prerequisites for economic development (Saluy et al., 2021). Human development is a positive change in humans for the welfare of society and the goal is all kinds of development. The advantages of HDI include being an important metric for assessing the effectiveness of efforts to improve people's quality of life and assessing the level of growth in an area. or the state and as an allocator of General Allocation Fund (DAU) funds.

People are a nation's greatest resource, and if people live long and healthy lives, the country or region will gain useful knowledge, enabling its citizens to experience a respectable standard of living. Achievement of human growth is shown by the high Human Growth Index (HDI) for a region or nation. A growing population will produce more employees, and additional labor will increase output. Population growth results in economic expansion supports growth in national output, and escalation of economic activity. Human activity is the main driver of economic development, so increasing labor productivity will help the economy develop.

2.7. The relationship between unemployment and economic growth

People's purchasing power and worker efficiency are both shown by the unemployment rate. The more fertile a community is the higher the income of its citizens, increasing their purchasing power. As a result, increasing social outrage will lead to a decline in people's purchasing power and an increase in institutional squalor. Economically, the high number of conflicts can limit opportunities to increase regional output, and socially, it represents a growing weight on the environment and environment. People will be increasingly drawn towards the poor population in this way. The function of workers in a nation's economy is very determining. This implies that a country's population can be used to measure its welfare and fiscal standing. Especially in the field of human resources, labor plays a role as an output component. In labor, factors other than number or volume need to be taken into account. Plus, the materials have to be better. The quality of the workforce or human resources will determine how well the nation's business will do.

The following is the research premise, which is based on the theoretical basis of previous research, and the justification provided:

- H_1: It is suspected that the number of poor people influences economic growth.
- H_2: It is suspected that the Human Development Index affects Economic Growth.

- H_3: It is suspected that the level of open unemployment influences economic growth.

The above hypothesis was prepared based on the research findings roadmap previously seen in **Table 1** as follows:

Table 1. Comparison matrix of previous research findings.

No	Name of researcher and year of research	Samples and test equipment	Variable	Results/Conclusions
1	Surgawati (2020)	Regency/City of West Java Province 2010–2017. Simultaneous Panel Model, with Two Stage Least Square (TSLS) Technique.	Government spending	Has a significant positive effect
			Labor	No significant effect
			Institutional quality	No significant effect
			Development of democracy	No significant effect
2	Mukarramah et al. (2019)	East Aceh Regency 2005–2015. Path Analysis	Capital expenditure	No significant effect
			Human development index	No significant effect
			Human development index	No significant effect
3	Safitri and Aisyah (2019)	Central Java Regency/City 2013–2017. PLS (Pooled Ordinary Least Squares) method	Wages	Significant influence
			Inflation	Significant influence
			Poverty	No significant effect
			Total population	No significant effect
4	Ariani and Nani (2021)	Regency/City of Banten Province 2014–2019. Ordinary Least Squared (OLS) analysis for multiple linear regression models.	The actual number of years of schooling	Significant influence
			Expected length of school index	No significant effect
			Purchasing power index	Significant influence
			Number of people classified as poor	No significant effect
5	Sulistyowati and Aminda (2022)	Regency/City of East Nusa Tenggara Province 2015–2019. Panel data regression analysis.	Poor people	Significant negative influence
			Open unemployment rate	Significant positive effect
			Minimum wage	Significant positive effect
			Education	No significant effect
6	Marwa (2018)	Indonesia in 2020–2016. Panel data method	Government spending	Significant positive effect
			Investment	No significant effect
7	Munzir et al. (2017)	Pidie District in 2000–2016. Multiple Linear Regression Model.	Government expenditure	Significant positive effect
			Private investment	Significant positive effect
			Labor	Significant positive effect
8	Al-Abri (2018)	Saudi Arabia in 1980–2015. Vector Autoregressive (VAR)	Government spending	No significant effect
			Remittances	No significant effect
9	Zhang et al. (2021)	Yangtze River Economic Zone in 2003–2016. Moran Index Method.	Energy	Significant effect
			Transportation infrastructure	Significant effect
			Mineral	No significant effect
10	Jermsittiparsert et al. (2019)	Indonesia, Philippines, Thailand, Singapore, Malaysia. Panel data method.	Government expenditure	Significant positive effect
			Gross capital formation	Significant positive effect
			Labor force	Significant positive effect
			Total reserves	Significant positive effect
			Gross savings	Significant positive effect

Source: summary of several previous studies.

3. Methodology study

3.1. Operational definition

The things that are the subject of the study are variables, independent variables, and dependent variables that is:

Dependent Variable (*Y*): Economic growth is increasing in value and volume determined by the government, with time per capita, and reducing poverty. Economic growth is the dependent variable. Economic growth can also be seen as an irrational process of change that leads to an improvement in a country's economic position. A country's economy develops when the economic decisions of its people directly result in increased production of goods and services. This research data comes from the period 2012 to 2021 and is expressed in percent per year.

Free/Independent Variable (*X*): In this research, three independent factors will be examined to find out whether these factors influence the shift in the dependent variable:

1) Number of Poor Population (*Jpm*). Poor people, namely those living in the area, with a monthly income. The macro data published by BPS comes from the National Socioeconomic Survey (Susenas) which calculates the percentage of the population experiencing difficulties. The number of poor people from 2012 to 2021 is the information used for this indicator.
2) Human Development Index (*Ipm*). The Human Development Index uses several fundamental aspects of quality of life to assess how well human development is progressing. The input for this variable is the human progress indicator for 2012 to 2021.
3) Open Unemployment Rate (*Tpt*). The ratio of overall resistance to the amount of labor is known as the open resistance level. The percentage of the population without work who want to work and are actively looking for work is represented by unemployment. The legal working age range is 15 to 64 years. The open unemployment rate in 2012–2021 is a set of information used for this measurement.

3.2. Population and sample

Population is a region or area consisting of generalizations from objects with quality and nature unique that have been chosen by academics for research and then taken the conclusion. In research, this is the Indonesian territory taken as a population study with variable poverty, index development people, and unemployment. Samples used for study that is nonprobability sampling, where the applied method is full sampling, which means that the group in the study represents the community subject in a way intact. Gorontalo Province with six Regency/City is created as a sample in the study This, with data taken in 2012–2021.

3.3. Data

Study wearing type study descriptive with method quantitative and secondary data types. Approach quantitative needs research, the results of which are Then quantified. This strategy was chosen Because studying quantitative standardizes, plans,

and organizes conditions from the beginning. Research factors can be measured with the scale and purpose of "secondary data" which is information obtained from books, articles, journals, and other documents used to support the study. Statistics rate growth economy, amount of poor population, HDI, and level of unemployment open period 2012–2021 is used in the study, and the website of the Central Statistics Agency Gorontalo Province is used to obtain information on the research results collected with use with method following:

- Documentation: Use summary of strategies involved evaluation information on GRDP, number of poor people, and other indices.
- Literature review: Do studies literature, which involves the later collection of data and information used as reference research, and that involves searching, reading, and analyzing various literature or references in the form of books, websites, and resources Trusted by others?

3.4. Estimation of panel data regression models

The approach mathematical used in studies combining cross-sectional data with time series is panel data regression. STATA is the researcher data processor used in the study and the equation of the regression is as follows: $Pe = \beta_0 + \beta_1 Jpm_{it} + \beta_2 Ipm_{it} + \beta_3 Tpt_{it} + \varepsilon it$. Information: *Pe*=Economic Growth; β_0=Constant; β_1, β_2, β_3=Independent variable coefficient; *Jpm*=Amount Poor Population; *Ipm*=Human Development Index; *Tpt*=Open Unemployment Rate; *i*=Regency /City in Gorontalo Province; *t*=Time (2012–2021); ε=Error term.

4. Results

4.1. Descriptive analysis

Gorontalo Province is a province formed by the North Sulawesi region based on Law Number 38 of 2000 of the Republic of Indonesia forming a province with 5 administrative regions and 1 city, namely Boalemo Regency, Gorontalo Regency, Pohuwato Regency, Bone Bolango Regency, North Gorontalo Regency and Gorontalo City. Geographically, Gorontalo Regency is located between 0°19′–1°15′ North Latitude and 121°23′–125°14′ East Longitude. The areas directly bordering Gorontalo Province are: a) west: Central Sulawesi Province; b) east: North Sulawesi Province; c) north: Sulawesi Sea; d) south: Tomini Bay. Most of Gorontalo province is hilly. That is why there are many mountains with different heights in this province. Located in Boalemo Regency, Mount Tabongo is the highest mountain in Gorontalo Province. Meanwhile, Litu-Litu is the lowest mountain in Gorontalo Regency. This province not only has many mountains, but it has many rivers with a flow of 5.3 km and is located in the Pohjois Gorontalo administrative area.

Table 2 presents the economy of Gorontalo Province is currently one of the regions that is not growing too rapidly due to conditions in the last few years with the Covid-19 pandemic which has caused Gorontalo Province's economic growth to contract in the last few years. The use of GRDP at Constant Prices aims to ensure that structural changes and economic development in a region can be seen clearly. The following is information data published by BPS Gorontalo Province regarding GRDP according to business fields Per Capita ADHK in Gorontalo Province in 2012–2021.

Table 2. GRDP of business fields per capita ADHK Gorontalo Province 2012–2021 (Thousand Rupiah).

Regency/City	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Boalemo	16,100.20	16,806.39	17,534.60	18,122.15	18,740.32	19,441.80	20,200.05	21,607.06	24,025.28	24,263.37
Gorontalo	15,406.46	16,477.43	17,643.57	18,641.14	19,746.08	20,969.51	22,143.90	23,670.02	22,595.69	22,956.29
Pohuwato	21,414.93	22,504.31	23,529.73	24,356.33	25,372.06	26,457.90	27,534.48	29,321.52	31,505.34	31,848.09
Bone Bolanggo	13,462.15	14,274.89	15,160.25	15,929.91	16,757	17,721.97	18,627.98	20,119.27	19,438.75	19,626.53
North Gorontalo	13,379.87	14,174.48	15,028.75	15,951.89	16,958.97	18,029.71	19,098.94	20,774.47	18,676.49	18,780.65
Gorontalo City	19,758.45	20,856.16	22,024.62	23,123.15	24,232.93	25,593.47	26,836.33	28,905.85	31,137.48	31,761.83
Gorontalo Province	17,987.07	19,367.57	20,775.80	22,068.80	23,507.21	25,090.13	26,719.27	28,429.97	28,425.21	29,209.96
Highest: 31,848.09										
Lowest: 13,379.87										
Average: 21,410.20										

Source: Central Statistics Agency Gorontalo Province, 2023.

In the table above, it can be seen that the growth capacity of the last ten years has fluctuated every year. This also explains that the economic sectors in the Gorontalo Province region experience rapid development and decline in contributing to economic growth every year. In 2021, the GRDP obtained by Gorontalo Province will be IDR. 29,109.96. This is because the potential of Gorontalo Province itself is dominated by agriculture, forestry, and fisheries which are increasing. and consumption House stairs on components expenditure.

However, there was a decline in GRDP from 2012 to 2014 where in 2012 GRDP fell from 7.91 percent to 7.67 percent in 2013 and fell again to 7.27 percent in 2014, this was due to seasonal effects. from agriculture, forestry, and fisheries, like rice already enter season crops and commodities existing plantations past harvest time. Meanwhile, the increase was 2.39 percent, whereas the economic growth rate in 2020 was −0.02 percent or Rp. 28,425.21 increased to 2.41 percent or Rp. 29,109.96 in 2021, p This is based on both of the offers nor demand continues to improve consumption House ladder, investment, consumption government and export estimates.

Table 3 shows the strategic problem for the Gorontalo Province government is that there are still many poor people compared to other districts. The problem of poverty is the main lesson, with economic indicators and assessments in the regions. See **Table 3** for a description of the number of poor people from BPS.

In **Table 3**, it can be seen that in the last ten years, the number of poor people in Gorontalo Province has varied. From 2012 to 2017, the number of poor people seemed to be increasing, but from 2017 to 2020, the number of poor people was looking to be decreasing. The largest increase occurred in 2015 when there were 11.74 thousand more poor people than in 2014 or 206.84 thousand people in 2015. Apart from that, Gorontalo Regency is the area in Gorontalo Province with the highest concentration of poor people, the largest increase occurred there in 2013 reaching 3.4 thousand people. Several factors influence the poverty rate in Gorontalo Province. The first factor is rice, which is the staple food of the Gorontalo people. Rice contributed the highest percentage figure, reaching 25.45 percent (rural) and 21.90 percent (urban). Apart from rice, the high level of cigarette consumption among the people of Gorontalo has also had a major impact on the increase in the number of poor people.

Filter kretek cigarettes contribute 15.41 percent to the cause of poverty, or are the second factor causing poverty in Gorontalo.

Table 3. Number of poor populations in Gorontalo Province regency/city 2012–2021 (Thousand people).

Regency/City	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Boalemo	28.28	31.06	30.50	32.19	32.29	34.35	32.83	31.31	31.63	31.83
Gorontalo	75.64	79.04	77.66	80.52	78.36	76.93	74.69	68.31	66.72	67.21
Pohuwato	27.68	30.19	29.85	32.70	31.66	32.56	30.39	29.13	28.92	29,22
Bone Bolanggo	24.56	25.71	25.31	28.19	27.80	27.91	27.61	25.91	25.73	25.76
North Gorontalo	19.91	20.81	20.15	21.06	20.65	21.67	21.09	19.46	19.56	19.34
Gorontalo City	10.69	11.67	11.64	12.18	12.43	11.95	11.91	11.91	12.46	12.95
Gorontalo Province	186.76	198.47	195.10	206.84	203.19	205.37	198.51	186.03	185.02	186.29
Highest: 10.91										
Lowest: 206.84										
Average: 55.76										

Source: Central Statistics Agency Gorontalo Province, 2023.

The number of poor people decreased from 2017 to 2020, respectively decreasing by 6.86 thousand people in 2018, 12.48 thousand people in 2019, and 1.01 thousand people in 2020 before increasing again in 2021 reaching 1.27 thousand souls. In the last five years, the number of poor people appears to have decreased, this indicates that the Gorontalo Provincial government's efforts to improve the quality of Human Resources (HR) by increasing factors with the acquisition of resources, the basic rights of the community have been successful so that the number of poor people can decrease gradually. The impact of the COVID-19 pandemic is still very influential on the increasing number of poor people in Gorontalo. However, various social assistance programs disbursed by the central, provincial, and district-city governments, as contained in Gorontalo Province Governor Regulation No. 21 of 2021 concerning Technical Instructions for the Implementation of Direct Food Assistance for the Gorontalo Provincial Government in the Context of Poverty Alleviation and Overcoming the Social and Economic Impact of the Pandemic (COVID-19), the social assistance program starts from the delivery of business capital assistance and distribution of basic material assistance. Specifically, business capital assistance is spread across several departments, such as the Department of Social Affairs and Community Empowerment (Dinsos PM) and the Department of Manpower and Small and Medium Enterprises (UKM) which can reduce the increase in the number of poor people.

Table 4 presents the achievements of the development process carried out at the city level exceeding the growth in the districts, it can be seen that the growth rate of the Gorontalo Province HDI.

Table 4 shows that the HDI value in Gorontalo Province has increased every year. The increase in HDI from 2012 to 2021 has an impact on all aspects ranging from a decent standard of living, healthy living, knowledge, and longevity. The HDI in Gorontalo Province varies between 2012 and 2021 in each region, with Gorontalo City having the largest growth rate, namely 77.41 percent in 2021, followed by an increase

in the HDI in Bone Bolanggo Regency by 0.95 percent from 68.11 percent in 2021. 2017 to 69.06 percent in 2018. Increase in HDI in 2021 from all dimensions, with age and standard of living increasing, then between 2014 and 2015 there was a decrease in Bone Bolanggo Regency and North Gorontalo Regency from 66.03 percent to 61.92 percent or a decrease of 9.8 percent in 2014 and 66.83 percent to 62.55 percent or a decrease of 4.28 percent in 2015, the decline in HDI had an impact from number hope life, number literate letters, average expenditure per capita and average years of schooling.

Table 4. Human development index in districts/cities of Gorontalo Province 2012–2021 (Percent).

Regency/City	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Boalemo	61.11	61.71	62.18	62.86	63.42	64.22	64.99	65.53	65.91	66.42
Gorontalo	61.87	62.22	62.90	63.63	64.22	64.95	65.78	66.69	66.92	67.34
Pohuwato	60.48	61.38	61.74	62.50	63.17	63.88	64.44	65.27	65.37	65.80
Bone Bolanggo	65.13	65.82	66.03	66.83	67.48	68.11	69.06	69.63	69.98	70.25
North Gorontalo	60.71	61.60	61.92	62.55	63.02	63.52	64.06	64.52	64.86	65.21
Gorontalo City	74.06	74.43	74.97	75.62	75.75	76.09	76.53	77.08	77.13	77.41
Gorontalo Province	64.16	64.70	65.17	65.86	66.29	67.01	67.71	68.48	68.68	69
Highest: 77.41										
Lowest: 60.48										
Average: 66.50										

Source: Central Statistics Agency Gorontalo Province, 2023

So, it can be said that the achievement of human development in Gorontalo Province is getting better every year. Several factors that influence the high and low Human Development Index figures in a region are influenced by education and income in a region. Districts/cities with slow HDI growth are also caused by the fact that the previous year's HDI was already high, so the human development process tends to be slower, conversely, if human development achievements in one area are low, human development growth will be faster than in others. The HDI value which continues to increase shows that the economic growth process carried out in the area is quite successful.

Table 5 shows the open unemployment rate in Gorontalo Province for 2012–2021. As seen in the **Table 5**, the open unemployment rate in Gorontalo Province has experienced increases and decreases over the last ten years with the open unemployment rate varying, as shown in the picture above, from 2016 to 2017 there was an increase in unemployment in Gorontalo Province by 1.52 percent or an increase from 2.76 percent to 4.28 percent. If we look at educational references, the level findings from the August 2017 Sakernas state that the open unemployment rate in Gorontalo is highest at the secondary education level (junior high school and high school) which reached 8.54 percent, next at the tertiary level the TPT reached 4.46 percent, while the TPT for elementary school and below is only around 1.4 percent, meaning that most of the unemployed people in Gorontalo are secondary and tertiary education graduates. Those with low education tend to be willing to accept any job to

meet their daily needs. In other words, this condition indirectly shows that the workforce absorbed in Gorontalo still has low education (Gorontalo, 2017).

Table 5. Open unemployment rate in districts/cities of Gorontalo Province 2012–2021 (Percent).

Regency/City	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Boalemo	4.83	1.69	2.08	4.57	4.57	4.88	3.90	3.17	3.66	3.57
Gorontalo	3.31	5.05	3.89	3.62	3.62	3.54	3.27	3.21	3.41	2.12
Pohuwato	5.39	1.38	2.38	2.06	2.06	2.70	2.89	2.94	3.10	2.45
Bone Bolanggo	7.07	3.89	4.84	6.76	6.76	4.70	4.30	4.35	4.48	3.45
North Gorontalo	2.95	2.78	3.83	5.61	5.61	5.08	4.27	4.98	5.21	2.30
Gorontalo City	4.60	7.35	7.22	6.14	6.14	5.50	5.86	6.31	6.52	4.45
Gorontalo Province	4.44	4.15	4.18	4.65	2.76	4.28	4.03	4.06	4.28	3.01
Highest: 7.35										
Lowest: 2.06										
Average: 4.18										

Source: Central Statistics Agency Gorontalo Province, 2023

While there was a decline in 2021 from 2020 of 1.27 percent or down from 4.28 percent to 3.01 percent, the COVID-19 pandemic still affected the employment situation in 2021 although the effect was not as strong as in 2020. Overall, the population aged Work started to become unemployed Because of exists Covid-19 pandemic 5.64 percent or 50,734 people. This number decreased by 7.58 percent year 2020 which reached 13.22 percent of the working-age population affected by COVID.

4.2. Regression model selection

To determine which model is better, between CEM and FEM, a Chow test is carried out. If the probability value is ≥0.05, which means that H_0 is accepted, then the CEM model will be selected, whereas if the probability value is <0.05, then the FEM model will be used, which means that H_1 is accepted. The hypothesis used in this test is stated by the results of the Chow test below:

Table 6. Chow test results.

Effects test	*Prob.*
F (3.51)	96.00
Prob > *F*	0.0000

Source: STATA 17 data processing results.

The results from the **Table 6** above show that the Chow test has a probability value of 0.0000, namely <0.05, so accept H_1, then the results of this test show that the best estimation model is FEM. In the Chow test, when FEM is used with model selection, it is necessary to use the Hausman test between FEM and REM.

The Hausman test is a model-type test to choose between a FEM model or a REM model. The hypothesis to determine the panel data regression model is *Prob. chi2* > 0.05, then the best model used in this research is REM, meaning H_1 is accepted.

However, if *Prob. chi2* < 0.05 then the best estimate is FEM, meaning H_0 is accepted. The following is a table of Hausman test results:

Table 7. Hausman test results.

Effects test	***Prob.***
Chi-Square (3)	83.65
Prob > chi2	0.0000

Source: STATA 17 data processing results.

The results from the **Table 7** of the Hausman test have a value of *Prob. chi2* is 0.0000, which means the value of *Prob. chi2* < 0.05 then H_0 is accepted, so the best model used in this research is the fixed effect model (FEM).

This test is a test to determine which type of model to choose the CEM model or the REM model. With the proviso that if the *prob. chibar2* > 0.05 then H_1 is accepted, meaning the REM model is the best model. If the value of *prob. chibar2* < 0.05 then H_0 is accepted, meaning the CEM model is the best model to use in research. The following are the results of the Lagrange multiplier test.

Results from the Lagrange multiplier test **Table 8**, *Prob* value. *chi2* appears to have a value of 0.0000, which means the value of *Prob. chi2* < 0.05 then H_0 is accepted so the best model used in this research is CEM. However, in the Chow and Hausman test the best model was selected, namely the fixed effect model (FEM). So, the results of the Lagrange multiplier test are ignored so in this research the best model used is the fixed effect model (FEM).

Table 8. Lagrange multiplier test results.

Effects test	***Prob.***
Chibar2 (3)	62.26
Prob > chibar2	0.0000

Source: STATA 17 data processing results.

4.3. Classic assumption test

The normality test is a classic hypothesis test to prove whether the variable has a normal distribution because the regression model is expected to display data that is normally distributed. The condition for data to be normally distributed is when *the p*-value is > 0.05, so if the *p*-value is less than 0.05 it means the data is not normally distributed. The following are the results of the normality test.

Based on the **Table 9** of normality test results, it can be seen that *the p-value* is 0.00004 so the data in this study is not normally distributed. However, this is normal because according to the law of large numbers, if the data studied is more than 30, it is considered that there is no normality problem.

Table 9. Normality test results.

Variable	**Obs**	***W***	***V***	***Z***	***Prob > z***
abs_Res	60	0.88384	6314	3927	0.00004

Source: STATA 17 data processing results.

In this study, the multicollinearity test was carried out twice. The first is by looking at the correlation value and the second is by looking at the VIF value. By carrying out this test it will be seen whether there is a linear relationship between the variables Number of Poor Population, HDI, TPT, and GRDP.

Based on the **Table 10**, it can be seen that the correlation value for each variable does not exceed 0.9 so the data in this study is free from multicollinearity problems.

Table 10. Multicollinearity test results with correlation values.

	GRDP	**JPM**	**HDI**	**TPT**
GRDP	1.0000	-	-	-
JPM	−0.1392	1.0000	-	-
HDI	0.4772	−0.4087	1.0000	-
TPT	−0.1188	−0.3741	0.5379	1.0000

Source: STATA 17 data processing results.

From the results of the **Table 11**, the VIF value is no more than 10, meaning the data used in this research is free from multicollinearity problems.

To determine whether homoscedasticity or heteroscedasticity occurs, the Bruesch-Pagan/Cook-Weisberg test can be used. This test determines whether heteroscedasticity occurs by looking at *Prob*. statistics > *chi2*. The following are the results of the heteroscedasticity test.

Table 11. Multicollinearity Test Results with VIF.

Variable	**VIF**	**1/VIF**
JPM	1.51	0.660566
HDI	1.47	0.682053
TPT	1.25	0.799451

Mean VIF 1.41. Source: STATA 17 data processing results.

From the **Table 12**, the heteroscedasticity test results show that *Prob* > *chi2* has a value of 0.0000, meaning there is still a heteroscedasticity problem in this research so it must be addressed. The following is a table of the results of handling problems in the heteroscedasticity test using the Feasible Generalized Least Square (FGLS) method.

Table 12. Heteroscedasticity test results.

Effects test	***Prob.***
Chi2 (3)	143.34
Prob > *chi2*	0.0000

Source: STATA 17 data processing results.

Handling with the FGLS method will reduce the standard error for each variable as a result the *z* value will increase. From **Table 13**, when compared with the regression in the best model, namely the fixed effect model, it can be seen that the *z* value for each variable has a value that shows an increase compared to the *t* value in the fixed effect model. Thus, this research is considered to be free from the problem

of heteroscedasticity.

The autocorrelation test is used to see the correlation between errors in the current period and the $t-1$ (previous) period and between one cross-section and another. Cases of autocorrelation with findings using data, with the autocorrelation test.

Table 13. Results of heteroscedasticity test handling.

GRDP	Coef	Std Err	*Z*	*P* > |*z*|	95 percent	Conf. Intervals
JPM	74.37391	67.77908	1.10	0.273	−58.47065	207.2185
HDI	1700.533	95.03924	17.89	0.000	1514.2591	1886.806
TPT	82.60955	148.0179	0.56	0.577	−207.5002	372.7193

Source: STATA 17 data processing results.

From the **Table 14**, the results of the autocorrelation test between periods can be seen that the probability is 0.0201, meaning it is less than 0.05, so there is an autocorrelation problem in this study. The following is a table of the results of handling problems in the heteroscedasticity test using the Feasible Generalized Least Square (FGLS) method.

Table 14. Autocorrelation test results.

Effects test	*Prob.*
F (1.5)	11.303
Prob > *F*	0.0201

Source: STATA 17 data processing results.

Handling with the FGLS method will reduce the standard error for each variable as a result the *z* value will increase. From **Table 13**, when compared with the regression in the best model, namely the fixed effect model, it can be seen that the *z* value for each variable has a value that shows an increase compared to the *t* value in the fixed effect model. Thus, this research is considered to be free from autocorrelation problems.

4.4. Panel data regression analysis

In this research, the best model obtained from previous testing is the fixed effect model (FEM). Below is a data regression analysis, using a fixed effects model that has been tested with classical assumptions. even though the Fixed Effect Model (FEM) was chosen as the best model. However, when the classical assumptions were tested, the results of the Fixed Effect Model (FEM) contained heteroscedasticity and autocorrelation problems. Violations of classical assumptions make the validity of the estimation results doubtful and can result in incorrect analysis, so it was decided in this study to use the Feasible Generalized Least Square (FGLS) regression method as a treatment for FEM.

Based on the **Table 15** which is the result of panel data regression with a fixed effect model, the equation for the regression that has been carried out is obtained as follows:

From the equation above it can be explained that:

1) The constant (a) is −94849.83 showing a constant value, with independent

variables The same with zero then the GRDP variable is equal to −9849.83

2) The JPM coefficient is 74.37391, which means that in this study when the values of other variables remain constant and JPM increases by One unit so GRDP will experience an increase of 74.37391 or 0.74 percent. The coefficient value positive shows that there is a good relationship between JPM and GRDP, meaning that if JPM increases, GRDP will also increase.
3) The HDI coefficient is 1700.533 which is significant in this study when the number of other variables remain constant and the HDI increases by One unit so GRDP will experience an increase of 1700.533 or 17.00 percent. This positive coefficient value shows that happen a good correlation between HDI and GRDP.
4) The TPT coefficient is 82.60955, which means that assuming the values of other variables remain constant and TPT increases by one unit, it will increase GRDP by 82.60955 or 0.82 percent. A positive coefficient shows a good correlation between TPT with GRDP means that if TPT increases then GRDP also increases.

Table 15. Results of panel data regression analysis.

GRDP	**Coef.**	**Std. Errr.**	***Q***	***P* > |*t*|**	**95 percent Conf. Intervals**	
JPM	74.37391	73.51674	1.01	0.316	−73.21709	221.9649
HDI	1700.533	103.0845	16.50	0.000	1493.582	1907.484
TPT	82.60955	160.548	0.51	0.609	−239.704	404.9231
_cons	−94849.83	7868.443	−12.05	0.000	−110646.4	−79053.27

Source: STATA 17 data processing results.

4.5. Significance test

The F-test is used in this research to see whether all the independent variables, namely JPM, HDI, and TPT together have a relationship with the dependent variable, namely GRDP. If the F test results show results where the four independent variables together influence GRDP, then this regression model can be continued with the *t*-test. The following are the results of the F test in this research.

Table 16. F Test results.

Instrument Test	**Value/Prob**
Wald *Chi2* (8)	957.16
Prob > Chi2	0.0000
Sig.	0.05

Source: STATA 17 data processing results.

Based on the results of **Table 16** the F test, it can be seen that the significant value is 0.0000, meaning the probability value is <0.05. The results of the F test show that *JPM*, *HDI*, and *TPT* are similar in GDP or economic growth in Gorontalo Province. Next, to see whether *JPM*, *HDI*, and *TPT* partially influence GRDP, it is necessary to carry out a *t*-test.

The *t*-test is carried out to see what influences it, namely by comparing the *t*-count values with the *t*-table by paying attention to each *t*-count or probability. With hypothesis criteria as below:

1) H_0 is rejected and H_1 is accepted if the *t*-count value > *t*-table or prob > $|t| < \alpha$ (0.05), meaning that the independent variable influences the dependent variable.
2) H_0 is accepted and H_1 is rejected if the *t*-value < *t*-table or prob > $|t| > \alpha$ (0.05), meaning that the independent variable does not influence the dependent variable.

Table 17. *t*-test results.

GRDP	***Q***	***P*** > |***t***|
JPM	1.01	0.316
HDI	16.50	0.000
TPT	0.51	0.609
_cons	−12.05	0.000

Source: STATA 17 data processing results.

Based on **Table 17**, it can be explained as follows:

1) Testing the Number of Poor Population. The probability of *t JPM* is 0.316 > 0.05 so *JPM* partially does not have a significant influence on the growth economy of Gorontalo Province, meaning the decision is that H_0 is accepted and H_1 is rejected because the probability is greater than alpha 5 percent.
2) Testing of the Human Development Index. The probability of *t HDI* is 0.000 < 0.05 so the *HDI* partially has influence on the growth economy of Gorontalo Province, meaning the decision is that H_0 is rejected and H_2 is accepted because the probability is smaller than alpha 5 percent.
3) The probability of *t TPT* is 0.609 > 0.05, so *TPT* partially does not have a significant influence on the economic growth of Gorontalo Province, meaning the decision is that H_0 is accepted and H_3 is rejected because the probability is greater than alpha 5 percent.

The *R*-Square test looks at the amount of deviation in the model, the bigger R^2, the better the model. The more independent variables there are, the higher the value of R^2, while the Adjusted *R*-Square test (Adjusted R^2), namely the value that looks at the large or small variation in the dependent variable (*Y*) can be explained by the variation in the independent variable (*X*), the increase in the independent variable can increase or decrease the value of R^2. Looking at the value of R^2 which is between $0 \leq R^2 \leq 1$. With a value of R^2 of 1, it can explain perfect suitability, whereas if the value of R^2 is 0 it can be interpreted that the dependent variable has no relationship with the independent variable. Following are the results of the *R*-Square test.

Based on the **Table 18**, it can be seen that the R^2 value is 0.2254 or 22.54 percent. This result can be interpreted that the independent variables, namely JPM, HDI, and TPT can explain their influence on GRDP as a dependent variable amounting to 22.54 percent, while as much as 77.46 percent can be explained by other variables or factors outside of this research.

Table 18. *R*-square test results.

***R*-squared**	
Within	0.8496
Between	0.1374
Overall	0.2254

Source: STATA 17 data processing results.

5. Discussion

5.1. Analysis of the effect of the number of poor populations on growth

Based on the results of the regression, the partial number of poor people is considered to have no significant influence on the economic growth of Gorontalo Province. This proves that hypothesis one is rejected, which means that the high or low number of poor people, either directly or indirectly, does not influence the ups and downs of economic growth in Gorontalo Province. The results of this study contradict research by Sulistyowati and Aminda (2022) which shows that poor people influence growth capacity, according to studies by Safitri and Aisyah (2019), and Ariani and Nani (2021) who stated in their research that poverty does not have a significant effect on economic growth, The number of poor people decreased from 2017 to 2020, respectively decreasing by 6.86 thousand people in 2018, 12.48 thousand people in 2019, and 1.01 thousand people in 2020 before increasing again in 2021 reaching 1.27 thousand soul. Two factors contribute to reducing poverty, namely, the government's ability to restrain regional inflation and more targeted interventions for the poor through the National Poverty Reduction Team database (Balisacan et al., 2002). In 2018, the increase in prices of several basic commodities leading to the poverty line was relatively controlled to slow the growth rate of the poor population while maintaining people's purchasing power. Another factor is the improving business conditions of farmers, because most of them work poorly in the agricultural sector, namely more than 60 percent. Therefore, it increases with the farmer's rate poor in Gorontalo. Limited human resources (HR) can refer to the physical position or location of a geographical area as well as the quality of human resources, such as skills, education, and expertise.

5.2. Analysis of the effect of the human development index on economic growth

Based on the results of the regression, the partial human development index is considered to have good and clear results in Gorontalo Province. This proves that hypothesis two is accepted, which means that the high and low human development index, both directly and indirectly, influences the ups and downs of economic growth in Gorontalo Province. The results of this research are in line with samples in all regencies/cities in Gorontalo Province in 2020–2021 when the HDI experienced an increase, economic growth also experienced an increase, initially Rp. 28,425.21 in 2020 than in 2021 it will increase to Rp. 29,109.96. The same incident occurred in all regencies/cities in Gorontalo Province from 2012 to 2019 where the HDI experienced an increase in economic growth which also initially increased by IDR. 17,987.07 in

2012 then increased gradually until 2019 to Rp. 28,429.97. The results of this study are in line with the findings of studies by Hasan (2021), Taqi et al. (2021), and Elistia and Syahzuni (2018) which argue that the development and growth index but contrary to Mukarramah et al. (2020), and Safitri and Aisyah (2019) which states that the human development index does not have a significant effect on economic growth. The decrease and increase in the HDI was caused by a decrease in the components that make up the HDI in letters and numbers with conditions that confirmed the need for city governments to improve their services. Based on the results of this research, it can be seen that it is by theory According to Rostow and Musgrave, the human development index has a crucial role in economic development through education and health because adequate education and health will enable production factors to be maximized. Large human development causes an increase in population which will increase consumption levels. The value of the human development index is influenced by government policies in human development seen from the government budget and the realization of that budget. This will make it easier to increase economic growth.

5.3. Analysis of the effect of open unemployment rates on economic growth

Based on the results of the regression, the partial open unemployment rate is considered to be unclear in Gorontalo Province. This proves that hypothesis three is rejected, which means that the high and low levels of open unemployment, both directly and indirectly, do not influence the ups and downs of economic growth in Gorontalo Province. The results of this research are in line with samples in all regencies/cities in Gorontalo Province in 2014–2015 where the increase in TPT from 4.18 percent to 4.65 percent coincided with an increase in economic growth from Rp. 20,775.8 to Rp. 22,068.8. Likewise in 2016–2017 where the TPT increased from 2.76 percent to 4.28 percent along with an increase in economic growth from Rp. 23,507.21 to Rp. 25,090.13. This contradicts the results of research (Pratiwi and Aminda, 2022) which states that the unemployment rate has a significant positive effect on expected economic growth. This is because people's purchasing power and worker efficiency are both shown by the unemployment rate. The more fertile a community is the higher the income of its citizens, increasing their purchasing power. As a result, increasing social outrage will lead to a decline in people's purchasing power and an increase in institutional squalor. Economically, the high number of conflicts can limit opportunities to increase regional output, and socially, it represents a growing weight on the environment and environment. People will be increasingly drawn towards the poor population in this way. Based on the research results, it was found that there was a discrepancy with the theory according to Keynesian theory, namely that poor aggregate demand ultimately causes reaction problems so that low spending rather than low output is the cause of slowing economic growth. Keynes argued that an open market system could not handle this. When the labor force grows, wages fall, it is neither useful nor profitable because falling wages means people have less money to spend on products. Manufacturers will ultimately incur costs and will not be able to accommodate workers.

6. Conclusions

The research aims to analyze the influence of the economic gROWTH number of poor people, the human development index, and unemployment on economic growth. Empirical findings prove that the number of poor people in the Regency/City of Gorontalo Province does not have a significant effect on economic growth in Gorontalo Province. The human development index factor in the Regency/City of Gorontalo Province has a significant influence on the economic growth of Gorontalo Province, where every increase in HDI results in increased economic growth. Other findings reveal that the open unemployment rate in the Regency/City of Gorontalo Province does not have a significant effect on the economic growth of Gorontalo Province. The government is expected to be able to make appropriate regulations and policies to maintain the stability of the number of poor people, the human development index, and the open unemployment rate with economic growth in Gorontalo Province. It is hoped that regional governments can provide greater employment opportunities and training for regional communities so that the number of workers in the regions can be maximally absorbed so that the unemployment rate decreases. By reducing the unemployment rate, it is hoped that community welfare will increase, which means the level of the human development index will also increase, the number of poor people will decrease and the economic growth of Gorontalo Province will continue to increase every year. It is hoped that this research will provide more knowledge and insight into the influence of the number of poor people, the human development index, and the open unemployment rate on the economic growth of districts/cities in Gorontalo Province.

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