



The Correlations Between Economic Growth and Socio-Economic Indicators in Nagan Raya Regency

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Abstract: This study aims to examine the relationship between economic growth and poverty, income inequality, and the quality of human resources. This study uses secondary data, namely time series data over 15 years from 2007-2021. The results of the empirical research show that economic growth is weakly correlated with poverty, income inequality, and human resource quality. In addition, it does not show any causal relationship. However, it is interesting that there is a negative correlation between poverty and the human development index and a positive and negative correlation between poverty and inequality. Several policy implications are recommended to the government about the results of the study and empirical analysis.

Keywords: Economic Growth; Inequality; Poverty; Human Development Index

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INTRODUCTION

Economic growth can reduce poverty but the relationship is still debated (Balasubramanian et al., 2023; Ravallion, 2001) and the other side states that there is insufficient evidence that economic growth is associated with an increase in HDI and a decrease in poverty but HDI and inequality can reduce poverty, while an increase in income inequality will further increase poverty and vice versa by Sihombing et al. (2023); Saragih, (2022); Maharda & Aulia, (2020). Furthermore, the success of a country's economy can be reflected in the development and increase in the growth of economic activity every year by Yuniarti et al (2020). This means that economic growth can be used as one measure to measure the performance of economic development in a country and at the regional level.

In the context of development strategies, economic growth is closely related to productivity, poverty, income equality, and the quality of human resources or the human development index. However, the degree of relationship between economic growth and some of these indicators is still uncertain or variable (Booth, 1997; Eşitsizliği & Büyüme, 2022). Some recent studies have shown a relationship between some socioeconomic indicators and economic growth (Randa & Sentosa, 2020; Azizah, 2022). However, there are also some other studies that show no effect of these socioeconomic indicators on economic growth, employment availability, and income distribution. These economic indicators become a reference in the quality of development carried out by the central and regional governments so as not to be trapped in the middle-income trap as found by (Eşitsizliği, 2022). Misallocation of appropriate resources is a frequent "traditional" mistake in developing countries, leading to income inequality and poverty or at least being entrapped in a middle-income trap (Banerjee & Duflo, 2007; Banerjee & Moll, 2010; Eşitsizliği & Büyüme, 2022). Government spending in several studies contributes to the

improvement of socio-economic conditions in developing countries (Gaiha et al., 2012; Imai et al., 2015; Fosu, 2017). Prabowo's (2020) found the polarization of economic indicators with economic growth and Yusuf & Halim's study (2021) related to employment and income inequality. Study conducted by Azis (2022) states that Boeke's dualism theory (1953) states that inequality will occur if a sector contributes to economic growth but is unable to absorb all available resources. For example, investment in the mining sector is export-oriented, but is followed by importing a number of capabilities including human resources that can exacerbate inequality and poverty. This problem is also related to the limitations of education that produces human resources. In addition, the gap between the leading sector and small and medium enterprises is widening. This has led to higher income inequality despite improving economic growth.

Economic growth can be interpreted as economic development characterized by an increase in the number of goods and services produced by the community, which will result in an increase in the level of public welfare and this economic growth can also be used as a measure of economic performance (Sihombing et al., 2023). Kuznet said that growth and poverty are closely related, because in the early stages of the development process, the poverty rate tends to increase and in the final stages the number of poor people gradually decreases (Azis, 2022); Rachman et al., 2023). Liyanage (2013) study also states that economic growth contributes to poverty and inequality reduction, while the quality of institutions or governance can also contribute to poverty and inequality. As explained by (Azis, 2022); Rachman et al. (2023), poverty levels are also influenced by several things such as the average income level in a region. The higher the income level, the greater the opportunity for budget provision to address poverty issues. However, this distribution must be right on target, otherwise it will only exacerbate poverty and cause social and economic problems.

Poverty is one of the causes of the limited ability of millions of people to fulfill their needs for food, clothing and shelter (Yuniarti et al., 2020). Poverty can also be interpreted as a crucial problem that is not only seen from the economic aspect, but also from broader aspects such as social, health, education, culture, and politics. This is also strengthened by structural theory (Azis, 2022; Susanto & Pangesti, 2019) which states that the causes of poverty are also caused by world economic politics in addition to cultural issues and economic development.

Problems related to poverty are also explained in the vicious circle theory of poverty. This theory explains that a person who is in a vicious cycle of poverty is characterized by conditions of underdevelopment, market imperfections, and capital shortages that lead to low productivity. Low productivity will result in low income received, low income received will also result in low savings and investment. Low investment and savings will lead to underdevelopment and so on without being able to get out of the poverty cycle (Susanto & Pangesti, 2019; Rachman et al., 2019).

Inequality and poverty are two things that cannot be separated. This was also stated by Sugiyarto et al. (2016) who explained that there is a pragmatic relationship between income inequality and poverty. There are two views on the relationship between income inequality and economic growth, namely the view that economic growth has a positive effect on income inequality and the second view that economic growth has a negative effect on income inequality. The theory that shows a positive effect on income distribution is social theory, but only in the early stages of development and is (Kim, 2016; Wolde et al., 2022). The same thing was also found by Iskandar & Subekan, (2016) who attributed several factors that can affect poverty, including economic growth that has not been able to reduce poverty because economic growth has not been evenly distributed in every layer of society. While previous study by found that a high level of economic growth cannot effectively reduce the problem of income inequality since there are still many people who are below the minimum standard of living and cannot reduce the number of poor people (Istiqamah et al., 2018). In effect the benefits of economic growth are not necessarily felt by every community.

Research related to this can be traced to Hussain et al. (2023) who found that income inequality also has a negative relationship with sustainable economic growth, hindering the economy's ability to promote sustainable economic growth. Previous research conducted by Sulistyaningrum et al. (2022) explained that economic growth has no relationship with income inequality and income inequality also has no relationship with the human development index, but has a relationship with the Provincial Minimum Wage. However, research by Imai et al. (2015) and (Fosu, 2017) found that economic indicators are interconnected, and some of them have a significant role in reducing or increasing poverty. For example, income or economic growth can reduce poverty. Meanwhile, inequality has a negative correlation with poverty in many developing countries. Therefore, this study will identify the direction of the relationship between several important socio-economic indicators to strengthen the government's policy direction in addressing socio-economic issues such as poverty, inequality, and human capital quality.

Furthermore, the Human Development Index (HDI) itself can spur economic growth and reduce income inequality if the quality of human resources increases. An increase in human resources in a region will help the region's development process. High ability can be reflected in the level of education. The higher a person's education, the better the quality of human resources. Good quality human resources can increase labor productivity which in turn will get a job by generating high income. Thus, the higher the quality of human resources will improve the welfare of the community and also have a great opportunity not to fall into poverty (Susanto & Pangesti, 2019; Djokoto, 2022).

Rostow's theory explains the stages of economic development with government spending consisting of an early stage with a very large percentage of government investment, an intermediate stage with greater private investment but still requires government investment because the government must provide many and quality

public goods and services due to market failures caused by the large role of the private sector (Azis, 2022). In the advanced stage, government activities shift to providing infrastructure for social activities such as public health service programs and other programs.

This study examines the relationship between several socio-economic indicators, such as the poverty rate, quality of human resources, income equality and economic growth in Nagan Raya Regency. Unlike previous studies, the study and analysis are conducted in the context of the accuracy of government spending in improving socio-economic performance as contained in the socio-economic indicators released by the Central Bureau of Statistics of Aceh Province. High economic growth must be balanced with income equality, improving the quality of human resources so as to alleviate the problem of poverty and other problems such as income inequality, high unemployment due to the low quality of human resources and of course can hamper the performance of the development process.

METHODOLOGY

The data used in this article were obtained from the Central Bureau of Statistics of Aceh Province from 2007-2021. The analysis model uses a correlation coefficient to measure the degree of relationship between variables and then the Granger Causality test is also conducted to obtain a causal relationship between the economic growth variable (growth) Y_t in Nagan Raya Regency and several socio-economic indicators in Nagan Raya Regency X_t . These socioeconomic indicators include the number of poor people, human development index (HDI), income inequality (Gini ratio).

$$r = \frac{n \sum_{i=1}^n X_t Y_t - \sum_{t=1}^n X_t \sum_{t=1}^n Y_t}{\sqrt{\sum_{t=1}^n X_t^2 - (\sum_{t=1}^n X_t)^2} \sqrt{n \sum_{t=1}^n Y_t^2 - (\sum_{t=1}^n Y_t)^2}}$$

The causality test method uses the linear Granger causality test (Asteriou & Hall, 2021; Bai et al., 2010) the test method can be written as follows:

$$y_t = \varphi_1 + \sum_{i=1}^p \theta_i x_{t-i} + \sum_{i=1}^p \beta_i y_{t-i} + u_t$$

$$x_t = \varphi_2 + \sum_{i=1}^p \omega_i y_{t-i} + \sum_{i=1}^p \gamma_i x_{t-i} + v_t$$

The null hypotheses are $H_0: \theta_1 \dots \theta_p = 0$ and $H_0: \omega_1 \dots \omega_p = 0$ where there is no causal relationship between xy , while the alternative hypotheses are $H_1: \theta_1 \dots \theta_p \neq 0$ and $H_1: \omega_1 \dots \omega_p \neq 0$ where there is has causal relationship.

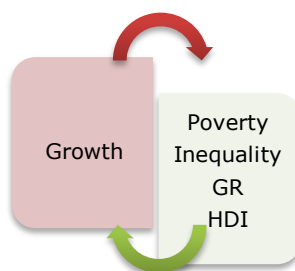


Figure 1. Theoretical Framework

RESULTS

The socio-economic indicator of poverty has a high gap between the lowest and highest figures with a standard deviation of 2,474 people. Meanwhile, the lowest inequality index reached 0.219 and the highest inequality reached 0.308. The inequality index is still moving relatively well. The average human development index is 53.4 percent. Nagan Raya's economic growth once only grew 2.6 percent and the highest reached 6.7 percent. This fluctuating movement of economic growth requires stability in economic activity and controlled inflation. The source of economic growth does not only rely on a few sectors, but also requires other sources of growth, especially those directly related to poverty alleviation. Overall, the normality test using the Jarque-Berra test shows that the data under study are normally distributed, except for the poverty data (Table 1).

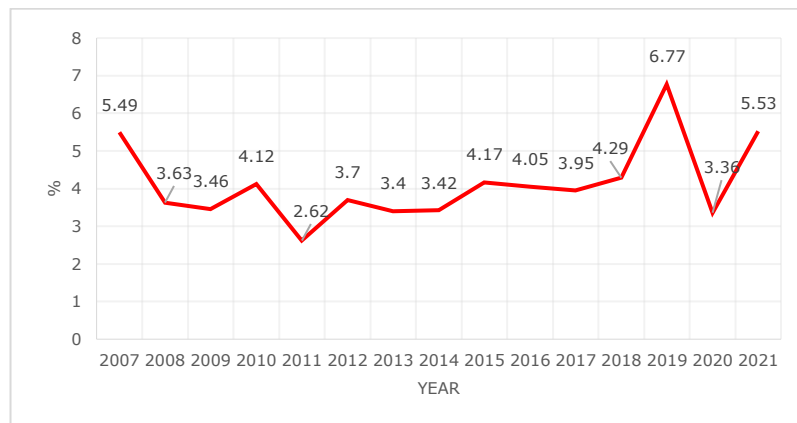
Table 1. Descriptive Overview of Economic Indicators in the Regency of Nagan Raya

	GROWTH	HDI	GINI RATIO	POVERTY
Mean	4.131	53.407	0.256	32145.330
Median	3.950	65.580	0.255	31320
Maximum	6.770	69.310	0.308	40000

Minimum	2.620	0.000	0.219	29930
Std. Dev.	1.057	27.699	0.027	2474.645
Skewness	1.157	-1.484	0.270	2.216
Kurtosis	3.813	3.229	1.942	7.917
Jarque-Bera	3.759	5.541	0.883	27.391
Probability	0.153	0.063	0.643	0.000
Sum	61.960	801.110	3.834	482180
Observations	15	15	15	15

Source: BPS Data of Aceh Province, (Author's Calculation, 2023)

Economic growth in Nagan Raya Regency in each year experienced fluctuating changes. The most declining economic growth occurred in 2011, which reached 2.62. However, there was an increase in the following years. The highest increase occurred in 2019 which reached 6.77 percent. This increase did not last until the following year, because in 2020 and 2021 it decreased. Even the decline in 2020 was almost half of the economic growth in 2019. Meanwhile, 2021 experienced an increase compared to 2020, but this growth was still not comparable to economic growth in 2019 (Figure 1). The economic growth rate in the latest data is not much different from the poverty rate in the 2007 data.



Source: BPS Data of Aceh Province, (Author's Calculation, 2023)

Figure 2. Economic Growth Rate in Nagan Raya Regency

Figure 2. illustrates that poverty in Nagan Raya Regency experiences changes in poverty alleviation every year. This also shows that the poverty problem is almost similar to the economic growth rate, namely in 2019 which shows the success of poverty alleviation because poverty in 2019 experienced the highest decline, reaching 29,930 people from a population of 167,294. Then in 2020 and 2021 it increased again, reaching 29,990 people and 30,710 people from a population of 168,392 people and 170,591 people in 2021.

To encourage economic growth in Nagan Raya Regency is by government intervention through government fiscal regulations and policies in the form of direct spending and indirect spending to fund government programs. Government programs in Nagan Raya Regency include the Direct Cash Assistance (BLT) program, assistance for the elderly, basic food assistance for cardholders of the Family Hope Program (PKH), Family Indonesia Prosperity (KIS), Smart Indonesia Program (PIP), Smart Indonesia Program for College (PIP-K), and other programs. These programs are funded by the Nagan Raya Regency government so that economic growth increases, income equality occurs, poverty decreases and the quality of resources increases. Based on the description of the problem, the purpose of this study is to examine the relationship between economic growth with poverty, income inequality, and improving the quality of Human Resources in Nagan Raya Regency.

Table 2. Comparability of Nagan Raya's Economic Indicators 2007-2021

Year	Poverty	IPM	Gini Ratio
2007	40,000	0	0.228
2008	33,200	0	0.255
2009	30,860	0	0.308
2010	32,800	63.57	0.237
2011	33,600	64.24	0.228
2012	32,770	64.91	0.219
2013	32,660	65.23	0.226
2014	31,910	65.58	0.278
2015	31,320	66.73	0.274
2016	30,310	67.32	0.282
2017	31,060	67.78	0.231
2018	31,060	68.15	0.284
2019	29,930	69.11	0.252
2020	29,990	69.18	0.275

2021	30,710	69.31	0.257
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Source: BPS Data of Aceh Province, (2023)

The government makes various efforts to spur the economy, one of which is through government spending or regional spending, both direct and indirect spending. Indirect expenditures incurred by the government, such as social assistance expenditures issued to improve the welfare of the community, turn out to make people dependent and unproductive because they are too dependent on government assistance. Poverty, income inequality and the human development index are not closely correlated with economic growth. This means that no matter how much the government spends in the form of direct and indirect expenditure to improve income equality, improve the quality of human resources and reduce poverty in Nagan Raya Regency, it has no effect on economic growth. This declining income inequality is due to the development process that has not been as effective as the efforts of Nagan Raya Regency by providing assistance from government spending. So that it can reduce income inequality or income equality occurs. However, this income equalization does not last long or is only temporary.

Thus, it can be concluded that the relationship between poverty and economic growth is positive but weak. Meanwhile, the relationship between income inequality and economic growth is also negative and weak. Then, the relationship between the human development index and economic growth is negative but the relationship is also weak. As economic growth increases, poverty increases but income inequality and human development index decrease. The significant and negative relationship between inequality and poverty is an interesting finding for further study. If poverty increases, inequality will decrease or vice versa. Although there is a correlation between the two variables, the direction of the correlation is opposite. This indicates that equitable development achievements in the social and economic sectors have not been achieved. The allocation of government expenditure and spending is one of the fiscal instruments that can be used to overcome this as reviewed by Masduki et al. (2022). However, social and cultural approaches in addressing economic indicator issues are also relevant and effective as suggested by Yusuf & Sumner (2015) and Azis (2022).

Inequality is prone to social conflict, especially horizontal inequality that occurs between groups and between regions. Meanwhile, vertical inequality, usually measured by the gini ratio, is a vertical conflict. It is empirically proven that conflicts due to inequality are mostly caused by horizontal inequality (Tadjoeddin et al., 2021). However, it does not rule out the possibility that these conflicts can be triggered by vertical inequality. A budget distribution approach and the participation of village officials and communities in planning and prioritizing development needs need to be applied.

Planning process that starts from the availability of data, participation of leaders and communities is needed to provide sufficient information about the needs of public facilities and infrastructure as well as effective economic empowerment activities. According to Wuyts (2011) an effective development strategy in overcoming the problems of growth, inequality and poverty is an inclusive development plan. Attempts are made to improve the quality of human resources that lead to technology and digital. So that the quality of growth and employment opportunities are wide open. And the most basic for the institutional level in rural areas is that the quality of public services can be done well.

Table 3. Correlation Coefficient Matrix of Economic Growth with Poverty, Inequality and Human Development Index in Kabupaten Nagan Ray

	Poverty	HDI	Growth	GR
Poverty	1	-0.5566	0.0621	-0.5184
HDI	-0.5566	1	0.0047	-0.1272
Growth	0.0621	0.0047	1	-0.0600
GR	-0.5184	-0.1272	-0.0600	1

Source: BPS Data of Aceh Province, (Author's Calculation, 2023)

The government takes various efforts to spur the economy, one of which is through government spending or regional spending, both direct spending and indirect spending. Indirect expenditures incurred by the government, such as social assistance expenditures issued to improve the welfare of the community, turn out to make people dependent and unproductive because they are too dependent on government assistance. Poverty, income inequality and the human development index are not closely correlated with economic growth. This means that no matter how much the government spends in the form of direct and indirect expenditure to improve income equality, improve the quality of human resources and reduce poverty in Nagan Raya Regency, it has ineffective relationship on economic growth. This declining income inequality is due to the development process that has not been as effective as the efforts of Nagan Raya Regency by providing assistance from government spending. So that it can reduce income inequality or income equality occurs. However, this income equalization does not last long or is only temporary. Figure 2 shows that the population continues to increase, but poverty in Nagan Raya Regency does not experience major changes.

Table 4. Granger Causality Test Estimation Results

Null Hypothesis:	Obs	F-Statistic	Prob.
Poverty → Growth	14	1.176	0.301
Growth → Poverty*		2.480	0.144
Gini_Ratio → Growth*	14	4.183	0.066

Growth → Gini_Ratio		0.521	0.486
HDI → Growth*	14	6.038	0.032
Growth → HDI		1.171	0.302
Gini_Ratio → Poverty	14	0.291	0.600
Poverty → Gini_Ratio		0.037	0.852
HDI → Poverty**	14	5.545	0.038
Poverty → HDI		0.265	0.617
HDI → Gini_Ratio	14	3.523	0.087
Gini_Ratio → HDI		1.931	0.192

Notes: Significant *10%, **5%.

Source: BPS Data of Aceh Province, (Author's Calculation, 2023)

In line with the findings, the study by Handayani et al. (2022) found similar conditions in Central Java. Along with the increase in local government spending, the number of poor people also increased. Thus, it can be questioned to what extent the quality of government spending in addressing socioeconomic problems, which are related to poverty as well as improving the quality of resources and income inequality. It means that after government assistance is given and received by the community and if it is only consumed, income inequality will expand. This can also contribute to a decrease in the human development index if it is not accompanied by an increase in the human development index that is more directed towards the readiness of human resources such as women's empowerment, readiness of service providers in the fields of education and health, equitable distribution of quality education and health services, provision of a skilled and professional future workforce, and others. Solikhin (2021) found similar conditions, namely the existence of a significant relationship and influence between education and the improvement of the human development index. Hence, with better quality resources, services and access to public facilities will also upgrade.

DISCUSSION

These research finding show that economic growth in Nagan Raya is not closely correlated with poverty, income equality, and improving the quality of human resources in line with Nurlina & Chaira's research, (2017) which found that economic growth has a negative and insignificant effect on income equality in Aceh Province. It is also closely in line with Yuniarti et al. (2020) which states that the human development index, poverty rate, and income inequality do not significantly affect the level of economic growth in Indonesia. However, it is difference with the research of Sihombing et al. (2023) who found that economic growth has a significant and negative effect on poverty and on the other hand stated that there is not enough evidence that economic growth has a significant effect in increasing HDI and reducing poverty.

Using the Granger causality test, most economic indicators do not show a causal relationship (table 2). However, the quality of human resources or HDI indicates a causal relationship with economic growth in Nagan Raya Regency. In addition, the quality of human resources is also related to the poverty rate in this regency. Thus, it can be concluded that the improvement in the quality of human resources as indicated by the HDI index has increased the accessibility of the community, particularly in Nagan Raya, to health services, education, and some public facilities and infrastructure such as the utilization of health and education service cards. Development programs that have been executed by the district government, such as the acceleration of rural area development to improve services and community empowerment, require the full participation of rural stakeholders. Local wisdom, transfer of authority, and responsibility for public functions of the district government need to be carried out. In addition, increasing institutional capacity, especially in facilities and especially increasing the role and contribution of government employees in rural areas related to the digitalization era is important in accelerating the rural transformation process. These factors are still not optimally implemented, so the correlation between several socioeconomic indicators, especially inequality and poverty, has not been resolved. In line with this argument, in his article Azis (2020) mentions the importance of these factors being involved and coupled with cultural aspects and local capture which are still centralized in the planning of development programs in the regions. Empowerment programs through direct cash transfers, in a study by Banerjee et al. (2017) in several research samples, showed that they were increasingly laziness, which resulted in a decline in productivity and impacted on welfare. It is important to consider these cultural factors so that development processes and outcomes are positively correlated with socioeconomic indicators.

CONCLUSION

Overall, we can conclude that these economic indicators do not have a causal relationship, but have a unidirectional relationship. If analyzed based on the degree of relationship, on average, there is still a relatively low relationship between economic indicators and the growth of economic activity in the Regency of Nagan Raya. Therefore, regional expenditures for programs related to income participation, overcoming the poor and vulnerable to poverty are directed to target programs that are effective in reducing poverty and increasing employment. Public facilities and infrastructure programs related to social and economic activities in this regency also need to be directed at effective development and maintenance programs so that accessibility for social and economic activities is more dynamic. A well-allocated local government expenditure considers several important aspects of socio-economic indicators. The size of the allocation is not a priority, but the amount of budget available needs to take into account its effectiveness in reducing poverty. The strong negative correlation between inequality indicates that allocations that impact on income distribution are not equitable, as well as expenditure allocations that encourage economic production activities of a large number of middle- and lower-income people.

Inclusive development approaches are relevant in reducing poverty, inequality, and improving the quality of growth and resources.

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