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THE EFFECT OF ECONOMIC GROWTH AND INEQUALITY ON POVERTY IN LAMPUNG PROVINCE IN 2015-2023

Syifa Asriyani Fauzia[1]*, Marselina[2], Dedy Yuliawan[3]
[1.2.3]University of Lampung, Indonesia
*Corresponding Author:
syifaasriyanif@gmail.com

Abstract
This study aims to examine the impact of economic development and inequality on poverty in Lampung Province in 2015-2023. The data used was in the form of panel data from 15 districts/cities in Lampung Province which was analyzed through a random effect model (REM). This analysis shows that GDP per capita and average years of education have a negative and substantial influence on poverty, but the Gini index has a positive and significant impact. The data shows that economic development and higher education contribute significantly to poverty alleviation, but income inequality exacerbates it. These findings are in line with the theory of economic growth, the downward trickle effect, and the theory of structural poverty and human resources, which underscore the importance of equitable distribution of development results and improving the quality of human resources as a method of poverty alleviation.

Keywords: Poverty, GDP Per Capita, Gini Index, Average Length of Schooling

1. Introduction

One of the biggest problems facing developing countries like Indonesia is poverty. Poverty alleviation affects nearly 270 million people in Indonesia, the world's fourth-most populous country. Data from the Central Statistics Agency in 2024 shows that there is still a significant need to overcome the problem of poverty, considering that the number of poor people reaches 24.86 million people, even though the national poverty rate has decreased from 11.13% in 2015 to 9.03% in 2023.

Graph 1. Number of Poor People in Indonesia in 2015-2023
Source: Central Bureau of Statistics (2023)

Graph 1 illustrates that between 2015 - 2019, there was a general trend of decreasing the number of poor people in Indonesia. On the other hand, the impact of the COVID-19 pandemic on the economy in 2020 caused a surge. After that, the number of poor people will decline slowly again until 2023. This shows that economic recovery efforts and social assistance are starting to have a positive impact.

The study conducted by revealed that the distribution of poverty in Indonesia is diverse across regions, with higher concentrations of poverty in rural areas as well as in eastern Indonesia. This shows the need for poverty alleviation strategies that are tailored to the characteristics and circumstances of each region. Further studies are needed at the regional level to develop appropriate policies, as shown by those who show that the variables that cause poverty are very different at the provincial level. Suryahadi et al (2009) Yusuf et al (2014).

Lampung Province is strategically important because it serves as the main gateway to the island of Sumatra, which borders the island of Java. However, this important position has not been able to fully address the problem of poverty. The poverty rate in Lampung Province is 11.11% in 2023, above the national average of 9.03%, as reported in Lampung is one of the provinces in Indonesia with a relatively high poverty rate, according to this figure. Central Bodies Statistics (2025).

The economic characteristics of Lampung Province, which largely depend on the agricultural sector, are an important aspect to understand the dynamics of poverty in the area. Since agriculture accounts for a large portion of Lampung's GDP, the city's residents are particularly vulnerable to economic shocks such as weather variations and shifts in commodity prices. In addition, as a location for transmigration destinations since the New Order era, Lampung has a distinctive demographic structure with a diverse population, both from the perspective of ethnicity and education level.

Economic growth reflected through Gross Regional Domestic Product (GDP) per capita is theoretically expected to reduce poverty rates through the trickle-down effect. found that while economic development can help reduce poverty, its effect on income inequality is unclear and depends on the origin of that growth. Although the poverty rate has decreased slightly, the gross regional product per capita of Lampung Province has increased from Rp15.8 million in 2015 to Rp19.2 million in 2023 (at constant prices in 2010). Cerra et al (2021)

Income inequality as measured using the Gini Ratio is an important element that can affect how effective economic growth is in tackling poverty. Because the benefits of economic development are not evenly distributed across society, research has found that excessive inequality can reduce the positive impact of growth on poverty reduction. Data from shows that the Gini Ratio in Lampung Province varies between 0.33-0.37 during 2015 to 2023, which shows a moderate to high inequality in revenue distribution. Ravallion (2001) BPS (2025)

The quality of the workforce, as seen from the average length of schooling, has an important role in determining the ability of the community to overcome poverty. found that people's incomes can increase by 8-13% for each school year, which can help lower poverty rates. With an average of 7.8 years in 2023, Lampung Province residents aged 25 years and older are still pursuing education shorter than the national average of 8.5 years. Psacharopoulos & Homeowners (2018)

There is a considerable disparity in poverty levels if you look at Lampung Province at the district/city level. According to data from, Bandar Lampung City as the administrative

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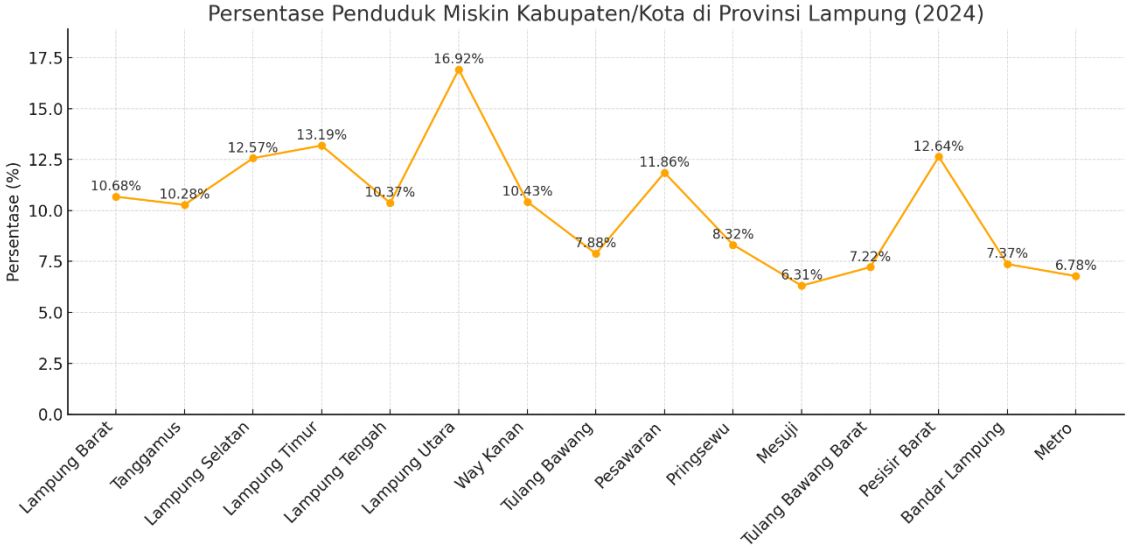
center of the province recorded the lowest poverty rate of 7.37%, while several other districts such as East Lampung and North Lampung are still above 12% in terms of poverty. (BPS, 2025)



Graph 2. Percentage of Poor People in Indonesia in 2024
Source: Central Statistics Agency (2024)

The poverty level of districts and cities in Lampung Province in 2024 can be seen in graph 2. The graph shows that compared to other regions, North Lampung Province has the largest proportion of poor people, which is 16.92%. On the other hand, Mesuji has the lowest number with 6.31%. Overall, there are significant imbalances between different regions, reflecting differences in development and access to the economy. Some areas such as the West Coast and East Lampung also show above-average poverty levels, indicating the need for policies that focus more on rural, isolated, and underdeveloped areas. This graph reinforces the opinion that poverty in Lampung is spatial and uneven, and emphasizes the importance of designing a more targeted poverty alleviation strategy based on region.

Based on these conditions, research on the factors that affect poverty in Lampung Province is very important to be carried out. In-depth knowledge of the link between economic development, income inequality, and the quality of human resources to poverty is expected to provide useful advice for local governments in developing more efficient and targeted poverty reduction strategies.

2. Theoretical Background

2.1 Poverty Theory

Poverty is a complex phenomenon and is a major focus in research on economic development. According to, the poor are unable to meet basic needs and do not have the necessary resources to live a good life, which is more than just a low wage. This concept then developed into a capability approach that emphasizes the substantive freedom of individuals to achieve various valuable functions. Poverty is defined by the World Bank as a condition of severe scarcity when the population is unable to meet basic food and non-food needs. BPS Indonesia measures poverty based on the ability to meet basic food and non-food needs. identifies three main dimensions of poverty: (1) absolute poverty which refers to the inability to meet the minimum needs for survival, (2) relative poverty related to the gap in living standards between groups of people, and (3) subjective poverty

which is based on an individual's perception of his or her economic condition. Sen (1976) Smith & Todaro (2003)

2.2 Trickle Down Effect Theory

The trickle-down effect theory developed by the Communist Party states that economic growth will initially increase inequality, but in later stages it will reduce inequality and poverty through a mechanism of distribution of benefits to all levels of society. This hypothesis is known as the inverted-U Kuznets curve. In the theory of the dual sector model, it is explained that economic growth starts from the modern sector which absorbs the surplus of labor from the traditional sector. This process will gradually increase people's productivity and income, thereby reducing poverty. Kuznets (1955) Lewis (1954).

Ravallion (2001) A comprehensive study of 80 countries found that economic growth has a significant effect on reducing poverty, but the elasticity of poverty to growth varies greatly between countries and periods. The study shows that initial inequality affects the effectiveness of growth in reducing poverty. São Paulo et al (2021) analyze the dynamics of poverty in Indonesia using three main approaches during the period 2015-2020. The study found that the chronic poverty component accounted for 63.16% and 54.15% of total poverty, indicating that most poverty in Indonesia is permanent and requires more in-depth structural interventions. One of the studies that examined the relationship between education disparities, poverty, and economic development in ten provinces on the island of Sumatra in 2004-2022 was using the Panel Vector Error Correction (PVECM) model. The gap in education and economic development has been proven to have an influence on poverty rates, both in the short and long term. (Yasir et al., 2024)

3. Methods

This research is quantitative and descriptive. Using cross-sectional or time series data, or panel data. Time series data covering the 2015–2023 range, along with cross-sectional data from 15 districts/cities in Lampung Province, were used in this analysis. GDP per capita, Gini index and average length of schooling are independent variables in this study. In this study, the percentage of poverty was used as a dependent variable.

The following econometric models were used for the purposes of this study:

$$PPMit = \beta o + \beta 1PDRBit + \beta_2 IGi_t + \beta 3RLSit + e_{it}$$

Information:

PPM	= Percentage of poor population 2015 – 2023 (percent)
GDP	= Gross regional domestic product per capita 2015 – 2023 (rupiah)
IG	= Gini Index / Gini Ratio 2015 – 2023 (index value)
RLS	= Average length of school 2015 – 2023 (year)
i	= 1, 2, . . . n, indicates the number of cross-individuals (cross-section).
t	= 1, 2, . . . t, indicates the dimension of the time sequence (Time series).
β0	= Constant (intercept).
β1, β2, β3,	= Regression coefficient.
e	= Error term.

4. Results and Discussion

4.1 Test Model Selection Criteria

The selection of the panel data regression model was based on the results of the Chow, Hausman, and Lagrange Multiplier (LM) tests. The Chow test, the Hausman test, and the

Lagrange Multiplier (LM) test were all applied when comparing two methods: the Common Effect Model (CEM) method and the Fixed Effect Model (FEM) method. When comparing the Random Effect Model (REM) method with the Fixed Effect Model (FEM) method, the LM Test is applied.

Table 1. Model Selection Test Results

Test Type	Test Statistic	d.f.	Prob.	Decision
Chow Test	F = 228.009489	(14,117)	0.0000	FEM is selected over CEM
	Chi-square = 451.206115	14	0.0000	
Hausman Test	Chi-Sq = 3.561481	3	0.3129	REM is selected over FEM
Lagrange Multiplier Test	Breusch-Pagan = 490.8554	-	0.0000	REM is selected over CEM

Source: Data Processing Results with Eviews, 2025

Model selection in panel data regression involves three sequential tests: the Chow test, Hausman test, and Lagrange Multiplier (LM) test. The results are interpreted as follows:

1) Chow Test (CEM vs. FEM)
   The Chow test determines whether the Common Effect Model (CEM) or Fixed Effect Model (FEM) is more suitable. The probability value (0.0000 < 0.05) strongly rejects the null hypothesis (H_0) in favor of the alternative hypothesis (H_a), indicating that the FEM is superior to CEM.
2) Hausman Test (FEM vs. REM)
   The Hausman test compares the Fixed Effect Model (FEM) and Random Effect Model (REM). The probability value (0.3129 > 0.05) fails to reject the null hypothesis, meaning REM is preferred over FEM.
3) Lagrange Multiplier Test (REM vs. CEM)
   The LM test evaluates whether REM is better than CEM. The probability value for the Breusch-Pagan statistic (0.0000 < 0.05) indicates that REM is superior to CEM.

Based on the sequential decision rules, the Random Effect Model (REM) is the most appropriate and optimal model for this study, as supported by the Hausman and LM tests. Here are the regression findings obtained with REM:

Table 2. REM Regression Results

Variable	Coefficient	Std. Eror	t-Statistic	Prob
C	28.91913	2.867767	10.08420	0,0000
GDP	-1.963177	4.531113	-4.325127	0,0000
GINI	8.092494	2.626370	3.081247	0,0025
RLS	-1.770899	0.273538	-6.474049	0,0000
Adjusted R-squred		0.645765		
F-statistic		82.42662		
Prob (F-statistic)		0.000000		

Source: Data Processing Results with Eviews, 2025

The following equation is obtained:

$$PPMit = 28.91913 - 1.963117PDRBit + 8.092494\ IGi_t - 1.770899RLSit + e_{it}$$

4.2 T test

To partially ascertain the extent to which an independent variable affects the dependent variable, one performs a partial test or a t-test. Here are the regression findings; to find out if a hypothesis is accepted or rejected, we run a partial test by comparing t-tables and

t-statistics and examining the possibility of t-statistics. According to the rule, the null (Ho) hypothesis is rejected and the alternative hypothesis (Ha) is accepted if the t-statistic is greater than the t-table or the probability is less than α = 0.05. Conversely, if the t-statistic is smaller than the t-table and the probability exceeds α = 0.05, then the null (Ho) hypothesis is accepted and the alternative hypothesis (Ha) is rejected.

Table 3. Test Results t

Independent Variable	t-Statistic	t-Table (α = 5%)	Probability	Conclusion
GDP	-4.3251	1.978	0.0000	Ha accepted
GINI	3.0812	1.978	0.0025	Ha accepted
RLS	-6.4740	1.978	0.0000	Ha accepted

Source: Data Processing Results with Eviews, 2025

Based on Table 4, there is a significant relationship between poverty in Lampung Province in 2015–2023, with a confidence level of 95% or α = 5%, with the following variables: Gross Domestic Product, Gini Index, and Average School Age.

4.3 Test F

To test the combined influence of all independent factors on the dependent variables, the F test was used. The following hypotheses were tested using this test, which had a significance level of 95% or α = 5% (0.05). All independent variables have no significant effect on the dependent variable if the null (Ho) hypothesis is true and β1, β2, and β3 are all equal to zero.

The fact that all independent variables collectively affect the dependent variables is shown by Ha: β1 β2 β3 ≠ 0. As long as the probability value < 0.05 and F calculate > F table, the null (Ho) hypothesis can be rejected according to the conditions. H0 is accepted when the probability value is < 0.05 and F is calculated < F table. Based on the test results, the F test calculated the Random Effect Model (REM) of the research model produced the following results:

Table 6. F Test Results

Df(k-1; n-k-1)	α	F-count	F-Table	Probability	Conclusion
(3; 130)	5%	82.42662	2.67	0.000000	H0 rejected

Source: Data Processing Results with Eviews, 2025

From the simultaneous significance test, an F-statistic of 82.42662 and an F-table of 2.67, according to Table 5, with a probability value of 0.000 < 0.05. The test results shown in the table show that from 2015 - 2023, all free variables have a significant effect on poverty in Lampung Province.

4.4 Coefficient of Determination (R2)

In a decent regression model, the range of the determination coefficient ranges from 0 ≤ R2 ≤ 1. Based on the results of the REM regression which showed a determination coefficient of 0.653696 and an adjusted value of 0.645765, it can be concluded that independent variables accounted for 65.36 percent of the variance of dependent variables. Meanwhile, other variables that were not included in this study accounted for the remaining 34.64%.

4.5 Discussion of Independent Variables

4.5.1 The Effect of Per Capita GDP on Poverty

The findings of the regression analysis show that GDP per capita significantly and negatively affects poverty. Assuming all other things being equal, a 1% increase in GDP

per capita would lead to a reduction in poverty by 1.963%, since the value of the coefficient is -1.963177. This is in line with the findings of a study that found that economic development is a key factor in reducing poverty in Indonesia, as poverty rates drop dramatically when GDP per capita increases. This is also consistent with studies that show a negative and statistically significant relationship between GDP per capita and poverty in West Kalimantan; that is, lower poverty rates are associated with higher per capita incomes. There will be fewer individuals living in poverty as a consequence of this approach overall. Matter (2024) Shirley & Novianti (2024)

As the economy of a region grows, the number of jobs will increase, the income of the people will increase, and the ability to buy goods will also improve. From a theoretical point of view, these findings are in line with the point of view of economic growth in poverty studies, which suggests that economic progress can lead to a gradual reduction in poverty. One way to indirectly reduce poverty is to encourage the expansion of regional gross domestic product (GDP), as stated by (Smith and Todaro, 2003). More jobs, higher incomes, and increased purchasing power are the result of a rapidly growing economy. Overall, this procedure will have an impact on reducing the poverty rate. These findings lend credence to the trickle-down effect hypothesis, which states that lower-class citizens will ultimately feel the positive impact of greater wealth from high-class citizens and corporations as a consequence of economic expansion. For example, when the industrial or service sector grows due to an increase in GDP, there will be more demand for labor, which ultimately creates income opportunities for those living in poverty.

So, according to the trickle-down hypothesis, if the economy is well managed and inclusive, it can help the less fortunate as well as the rich. However, it should be emphasized that this negative impact of GDP on poverty does not mean that economic growth will always reduce poverty in all situations. The effectiveness of this relationship depends largely on how the growth results are distributed. Without policies that support equity and pay attention to the poor, the trickle-down effect may be slow or even not at all. Therefore, in addition to striving to increase GDP, local governments must also ensure that the growth is inclusive and equitable.

4.5.2 The effect of the gini index on poverty

Regression analysis showed a positive and statistically significant relationship between the Gini index and poverty rates. The Gini index coefficient of 8.092494 indicates that, if the other factors are equal, an increase in the index of 1% would lead to a decrease in poverty of 8.092%. This is in accordance with the results of a study that found a positive and statistically significant relationship between income inequality (measured by the Gini index) and poverty in 34 provinces in Indonesia. In other words, the more uneven the distribution of income, the higher the poverty rate. According to research conducted by, the number of poor people in the Special Region of Yogyakarta Province is positively and significantly influenced by the Gini index. For example, an increase in the index by one point will result in an increase in the number of poor people by one point. Ariyani & Nafisyah (2024) Faithfulness & Tohirin (2025)

All of these results lend credibility to the idea of structural poverty, which states that unequal access to resources and opportunities contributes to low-income levels. In an unbalanced society, the wealthy tend to benefit more from economic growth, while the poor are marginalized and face difficulties in accessing education, good jobs, and quality public services. Thus, despite the increase in GDP value, many people are still trapped in structural poverty that is difficult to overcome with just an economic approach. In

addition, this discovery uncovers a strong argument against the idea of the trickle-down effect, which states that all members of society, even the less fortunate, will reap the benefits of economic expansion. In the context of this regression analysis, the high Gini Index actually indicates that the trickle-down effect is not going as expected. When income inequality is at a high level, the benefits of economic growth are generally concentrated in the upper class, while the lower strata do not feel a significant economic improvement. This contributes to the high poverty rate, even in the midst of the economic growth that occurs. According to, the trickle-down effect can fail if the redistribution mechanism does not work, such as through progressive taxes, social spending, and targeted pro-poor programs. High inequality can also weaken aggregate demand and slow long-term growth, ultimately exacerbating poverty systemically. Stiglitz (2012)

4.5.3 Effect of average school age on poverty

The results of the regression using the average duration of education showed that this variable significantly and negatively affected poverty. The average duration of education has a coefficient value of -1.770899, which, if all other things are equal, suggests that a 1% increase in the average length of schooling will lead to a decrease in poverty of 1.770%. This is in accordance with the findings of the latest research that found a negative and statistically significant relationship between average school duration and poverty in East Java Province. Specifically, the study found that poverty rates decreased along with increasing people's education levels. Furthermore, research from found that the average year spent in school significantly lowered the poverty rate in West Nusa Tenggara Province. Jannah & Sari (2023) Mirnayanti et al (2024)

There is an inverse relationship between education and poverty, as shown by the negative regression coefficient. This means that efforts to eliminate poverty must be focused on expanding access and duration of schooling. The findings of this study corroborate the hypothesis of human resource poverty, which states that inadequate human capital, especially in the form of education, is the main cause of poverty. People with low levels of education usually face difficulties in getting adequate jobs, having stable incomes, and experiencing obstacles in engaging in productive economic activities. On the other hand, the longer a person stays in education, the more likely they are to have skills and competitiveness in the world of work, which means that the chances of getting out of poverty will also increase. In addition, these results can also be understood through the perspective of trickle-down effect theory, albeit with a more critical approach.

This theory claims that the benefits of economic growth will flow downward and touch various walks of life, including those at the poverty line. Nevertheless, education is one of the approaches to preparing superior human resources, which is necessary to ensure this influence is felt. When individuals are well-educated, they are better able to contribute to economic development through their work and entrepreneurial endeavors. In this case, education is a means that allows the benefits of economic growth to be felt by disadvantaged people.

5. Conclusion

The study found that poverty rates were significantly influenced by three independent variables: gross regional product per capita, Gini index, and average length of schooling.

1) There is a very substantial negative relationship between GDP per capita and poverty. Poverty can be reduced by up to 1,963% with an increase in GDP per capita of 1%. It is clear that the increase in gross regional product per capita (GDP) has a significant influence in significantly and successfully reducing poverty rates.

2) Poverty is positively and significantly affected by the Gini index. A poverty reduction of 8,092% can be achieved by increasing the Gini index by 1%. Economic equality is key to reducing poverty, as poverty rates tend to increase dramatically in correlation with increased income inequality as measured by the Gini index.
3) There is a large and negative relationship between poverty and average school age. Increasing the average duration of education by only one percent will have an impact of 1,770% on poverty reduction. This proves that the reduction in poverty rates is largely dependent on improved educational opportunities and educational quality, as measured by the average length of schooling.

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