# Impact of the Human Development Index, Economic Growth, Investment, and Government Expenditure on the poverty of districts and cities in Bengkulu Province

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**ABSTRACT**

The purpose of this research is to observe the influence of the human development index, economic growth, investment, and government spending on the poverty in districts and cities in Bengkulu Province. Data used as panel data for the period 2014–2020 The method of analysis used is panel data regression. Research results show that the human development index, economic growth and investment have significant effect on poverty.

## INTRODUCTION

Poverty is a major problem in developing countries like Indonesia. It's a complex problem that goes on from one generation to the next. Poverty can be categorized into two types: absolute poverty and relative poverty Absolute poverty leads to situations in which individuals are unable to meet basic needs, such as food, supplies, and boards, because they have incomes below the minimum requirements. On the other hand, relative poverty is characterized by an unequal distribution of income that creates disparities even when individuals are able to meet their basic needs. In this case their income is still below the average income of the community around. (Bawowo, Kalangi, and Masloman 2022)

Part of the measure that affects the poverty rate is the human development index. The Human Development Index measures the ratio of life expectancy, literacy, education and standard of living across countries around the world.

Another factor that has an impact on the poverty rate is economic growth. Economic growth refers to the increase in economic activity that results in an increase in the production of goods

and services in society. The problem of economic growth is often seen as a long-term macroeconomic issue. (Sukirno, 2019). The role of the government is of great significance in efforts to boost economic growth in order to stimulate economic development. Economic growth serves as a measure to measure success in development and in overall economic activity.

Investment is also part of the aspect that has an impact on poverty levels, both on a regional and national scale. Investment can stimulate national economic growth, which in turn not only accelerates economic development but also potentially improves national equality and prosperity continuously, which is often referred to as economic development. According to Ilegbinosa, a country's economy relies heavily on raising capital to cope with various economic problems, crises, and challenges. This is because investments in specific sectors of the economy have the ability to quickly transform the various economic challenges facing a nation.

Part of the other aspect that affects the poverty rate is government spending, which is the implementation of fiscal policies to allocate budget spending to the public interest, especially in support of the poor. Thus, a proper budgetary policy can help reduce poverty levels.
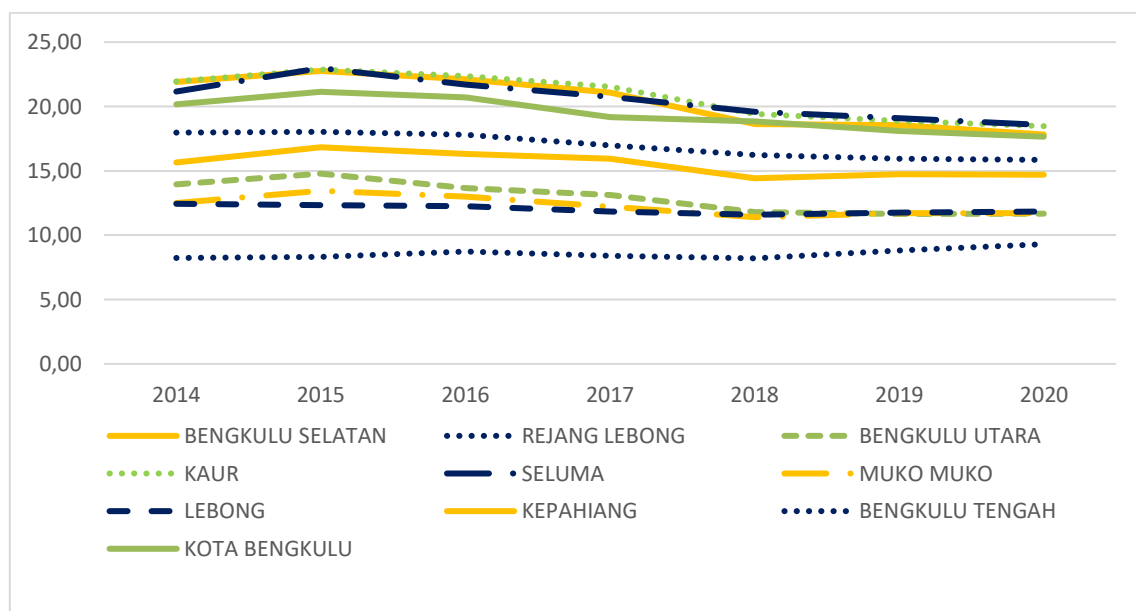


*Graph 1. Poverty levels of districts and cities in Bengkulu Province*
*Source: BPS, Data processed.*

Graph 1 shows that the poverty rates in Kabupaten Bengkulu Selatan, Kabupaten Kaur and Kota Bengkulu have always fluctuated higher than those in other kabupaten over the past seven years. Bengkulu City is also not exempt from the high poverty rate compared to other districts, where the average poverty rate in Kaur district reaches 20.78%, the highest in Bengkulu province. Meanwhile, the lowest poverty rate is in Bengkulu Tengah Regency at 8.57%, the lowest in Bengkulu Province.

The objectives of this research were:
1. to analyse whether the human development index affects the poverty rate in Bengkulu District.
2. to analyse whether economic growth affects poverty levels in Bengkulu City district.
3. to conduct an analysis of whether investment has an impact on the poverty rate in Bengkulu City District.
4. To analyze whether government expenditure affects the poverty rate in Bengkulu City Regency.

## LITERATURE REVIEW

According to Supriatna (1997), poverty is a condition that reflects the continuing lack of intention of the affected individual. A person is considered poor if he has characteristics such as a low level of education, low work productivity, low income, health and nutritional problems, and poor living prosperity, all of which indicate a circle of inefficiency. Poverty can be triggered by the limitations of available SDMs, either through formal or informal education, which ultimately affects low levels of education.

Poverty is influenced by many factors, such as the human development index, economic growth, investment, and government policies. Some researchers have found a negative impact of the human development index on poverty *(Bawowo et al., 2022;* Senewe et al., 2021*; Prasetyoningrum & Sukmawati 2018; Akmal & Aisyah 2023; Pratama and Aisyah 2023)*

Another variable used in this research is economic growth. Economic growth is believed to influence the reduction in poverty rates. Based on Budiono, economic growth is a phase that produces long-term increases in per capita output and stems from the internal way the economy works. A number of studies explain whether economic growth negatively affects poverty rates *(*Prasetyoningrum & Sukmawati, 2018;  Megasari et al., 2015*;* Priseptian & Primandhana, 2015; Ayu Nurlita et al., 2017; .Rarun et al., 2018; Rambe & Purmini, 2020)

Other research results prove the positive impact of economic growth on poverty rates (Bawowo et al., 2022). This researcher reveals that this indicates that when there is high economic growth, the poverty rate slows up. This is due to the unfair distribution of income, with the assumption that economic growth is more by middle and upper classes, while those who are already poor will suffer more.

Investment is a variable that affects poverty levels. Based on Sukirno (2000), the implemented capitalization continues to boost economic activity and employment opportunities, boost national income, and increase the level of prosperity in the region. Research carried out (Nizar et al., 2013) found that if investments are not too large, poverty rates are affected. However (Megasari et al., 2015) said that if investment had the greatest coevidence on economic growth, that it could help governments in lowering poverty rates.

Government spending variables reflect the rules applied by the government. If the government has taken measures to purchase goods and services, the government expenditure reflects the budget required by the government to implement the rules. Several researchers have identified the negative impact of government spending on poverty rates (Rarun et al., 2018; Pratama & Utama, 2019; Aini, 2020; Megasari et al., 2015)

The hypothesis for this research is below:
a) It is suspected that the human development index has a negative impact on the poverty rate in Bengkulu City District.
b) It is suspected that economic growth has a negative impact on poverty levels in Bengkulu City District.
c) It is suspected that the investment has a negative impact on the poverty rate in Bengkulu City District.
d) It is suspected that government spending has a negative impact on poverty levels in Bengkulu City District.

## METHODS

Research that can be achieved through the use of statistical techniques or other methods that are quantifiable (measuring) is called quantitative research. (Bawow et al., 2022). The method of analysis used in this study is the regression analysis of panel data for the period 2014–2020 in 10 districts of Bengkulu City.

$$PRit = \beta_0 + \beta_1 HDIit + \beta_2 EGit + \beta_3 Iit + \beta_4 GEit$$

Description :
    PR = Poverty Rate
    HDI = Human Development Index
    EG = Economy Growth
    I = Investment
    GE = Government Expenditure
    $\beta_0$ = A constant
    $\beta_{1-4}$ = Partial Coefficient of the variable X
    ei$t$ = *Error Term at time t for cross section unit*

### Panel Data Regression Model

With panel data regression, the best model will be chosen from among the three estimates of the common effect model (common effect model, fixed effect model, and random effect model) according to the purpose of this study. There are three tests used to find models to make estimates in the regression of panel data, namely the Chow test, the Hausman test, and the lagrange multiplier test (LM).

Based on the best model, the hypothesis will be tested with an F-test and a t-test with a probability of 5%.

## RESULTS

### Results of panel data regression

Panel data regression estimates for the three models (common effect model (CEM), fixed effects model (FEM), and random effect model (REM)) are shown in Table 1.

*Table 1. Panel data regression Model*

| Variables | Coefficients | | |
|---|---|---|---|
| | CEM | FEM | REM |
| PR | 26,53673 | 45,24859 | 43,00760 |
| HDI | -0,147550 | -0,360160 | -0,324115 |
| EG | 0,001805 | 0,001638 | 0,002223 |
| I | -0,005349 | -0,006075 | -0,007529 |
| GE | 0,119382 | -0,037981 | -0,037837 |
| R-Square | 0,124678 | 0,970102 | 0,555737 |
| F-Stat | 2,314587 | 139,7708 | 20,32747 |
| Prob.F Stat | 0,066670 | 0,000000 | 0,000000 |

*Source: Output Eviews 12*

### Selection of the Best Model

At the time of determining the best estimate model, model tests (Chow tests, Hausman tests, and LM tests) will be carried out.

### Chow Test

The chow test is used to determine the most appropriate common effect or fixed effect model to estimate the data panel. The results of the analysis can be found in Table 2.

**Table 2. Estimation Results of Chow Test**

| Cross-section chi square | 232,917417 |
|---|---|
| Prob | 0,0000 |

Source: Output Eviews 12

a. Hypothesis formulation
   $H_0$ : common effect model (CEM)
   $H_A$ : fixed effect model (FEM)
b. Determining the significance level (α) = 5%
c. Determining the test criteria
   $H_0$ : accepted if the p-value > α
   $H_0$ : rejected when p-value < α
d. Conclusion
   Due to p-value for F (0,0000) < α (0,05), thus rejected. The best model to use is the Fixed Effect Model (FEM).

### Hausman Test

Hausman test is a test used to determine the appropriate Fixed Effect Model or Random Effect Model to estimate panel data. The results of data processing can be observed in table 3.

**Table 3. Hausman Test Estimation Results**

| Cross-section random square | 2,252973 |
|---|---|
| Prob | 0,6893 |

Source: Output Eviews 12

a. Hypothesis formulation
   $H_0$ : random effect model (REM)
   $H_A$ : fixed effect model (FEM)
   c. Determining the significance level (α) = 5%
   d. Determining the test criteria$H_0$ accepted if the p-value > α
   $H_0$ rejected when p-value < α
a. Conclusion
   The p value is due to F (0,6893) > α (0,05), so H0 is accepted. The model used is a random effect model (REM).

### Lagrange Multipler Test (LM)

The Lagrange Multipler Test is a test used to determine whether a random effect model is better than a common effect model. Data processing results can be observed in Table 4.

**Table 4. Lagrange multiplier test (LM)**

| Breusch-pagan | 175.8947 |
|---|---|
| Prob | 0,0000 |

*Source: Output Eviews 12*

a. Hypothesis formulation
   $H_0$ : random effect model
   $H_A$ : Common effect model
b. Determining the significance level (α) = 5%
c. Determining the test criteria
   $H_0$ accepted if the p-value > α
   $H_0$ rejected when p-value < α
d. Conclusion
   Because prob. Breusch-pagan (0,0000) < α (0,05), then H0 is rejected. Therefore, the model used is the Random Effect Model (REM).

**Test hypothesis and interpretation of determination coefficients (R2)**

Based on the three tests of the models, the best model was chosen, the REM model. REM regression models are presented in Table 5.

**Table 5: Estimated Results Random Effect Model**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| TK | 43,00760 | 9,604991 | 4,477630 | 0,0000 |
| IPM | -0,324115 | 0,162045 | -2,000161 | 0,0497 |
| PE | 0,002223 | 0,000644 | 3,454370 | 0,0010 |
| I | -0,007529 | 0,002027 | -3,713945 | 0,0004 |
| PP | -0,037837 | 0,021060 | -1,796630 | 0,0770 |
| R-squared | 0,555737 | | | |
| F-statistic | 20,32747 | | | |
| Prob(F-statistic) | 0,000000 | | | |

*Source: Output Eviews 12*

**F test**

Based on table 5, the probability of test F < 0.05 is known, so H0 is rejected. For that, it can be concluded that the human development index, economic growth, investment, and government spending together influence poverty.

**Determination coefficient**

With the REM model, we obtained an R-square of 0.555737. This information shows that the overall ability of the independent variable to explain the variation in poverty rates in Bengkulu province is 55,5737%. The remainder, 44,4263%, is influenced by other factors not included in this model.

### *Partial test*

Results of partial significance test for panel data model in Table 6.

**Table 6. Partial test**

| Variable | Prob | Kriteria | Conclusion |
|----------|--------|----------|------------------------|
| TK | 0,0000 | <0,05 | Significant at α = 5% |
| IPM | 0,0497 | <0,05 | Significant at α = 5% |
| PE | 0,0010 | <0,05 | Significant at α = 5% |
| I | 0,0004 | <0,05 | Significant at α = 5% |
| PP | 0,0770 | < 0,10 | Significant at α = 10 % |

*Source: Output Eviews 12*

From Table 6, it can be observed that if the probability of the t-statistics in HDI, economic growth (PE), and investment (I) is <5%, then H0 is rejected. This means that HDI, economic growth, and investment affect poverty. Meanwhile, government spending (PP) affects poverty at α = 10%.

## DISCUSSION
### Effect of Human development index on the poverty

From the analysis, it can be concluded that the variable of the human development index has a negative influence on the poverty rate. The results support the hypothesis that when the level of poverty decreases, the index of human development will increase, and on the other hand, when the rate of poverty increases, people's development index will decrease. The results of this study coincide with previous studies *(Bawowo et al., 2022;* Senewe et al., 2021*; Prasetyoningrum & Sukmawati 2018; Akmal & Aisyah 2023; Pratama & Aisyah 2023).* The study explains that increasing the human development index will reduce the poverty rate, while decreasing the human development index will lead to higher levels of poverty. The same is true in the districts and cities of the province of Bengkulu. The Human Development Index has an impact on the poverty rates increasing, as poor communities have increasingly limited access to education due to the high cost of education. Furthermore, with poor education, they could not get a decent job, which makes them poor, and with poor health, which often causes sickness, which leads to low productivity, they don't have enough income.

### *Effect of Economic growth on the poverty*

The results show a significant positive impact of economic growth on the poverty rate *(Bawowo et al.,2022; Pratama and Utama 2019; Prasetyoningrum & Sukmawati, 2018;  Megasari et al., 2015; Priseptian & Primandhana, 2015; Ayu Nurlita et al., 2017; Rarun et al., 2018; Rambe 2022).* In Bengkulu province, economic growth has increased, leading to increased poverty as well. This is because the economy is growing in the province of Bengkulu only in certain sectors that are accepted by middle-class society. Moreover, the growth of this economy is supported by investments from outside the provinces, so the poor people have no access to the development of the economy. Because of the income gap, it is assumed that only the upper middle class benefits from economic growth, while the poor are becoming poorer.

### *Effect of Investment on the poverty*

Based on the results of the hypothesis test, it proves whether investments have a negative impact on the poverty rate. This is because investment is part of an aspect of economic growth, and besides that, investment is also a solution to economic problems. Investment also plays an important role in economic growth in developing countries. It affects the employment situation, output, prices, income, imports and exports, the general welfare of the recipient country, as well as the balance of payments. The results of this research are in line with previous research *(Pratama and Utama 2019; Dira et al. 2023; Aminah 2017; Kambono and Marpaung 2020; Megasari et al., 2015; Celeste.Ch.E.Rarun, George M.V. Kawung 2018).*

### *Effect of Government spending on the poverty*

At α = 10%, the regression coefficient for the government expenditure variable is -0,037, which indicates that if government spending increases, the level of poverty generated will decrease, and on the other hand, if public spending drops, the poverty rate will rise. This study is in line with previous studies *(Goni et al., 2022; Rambe 2022; Rarun et al., 2018;* Purmini & Rambe, 2021; *Pratama & Utama, 2019; Aini, 2020; Megasari et al., 2015; Amalia et al. 2015).*

## CONCLUSION

Based on the results of research and discussion, the conclusions of this research are:
1. Human development index has a negative impact significantly on poverty of districts and city in Bengkulu Province.
2. Economic growth has a positive impact significantly on poverty of districts and city in Bengkulu Province
3. Investment has a negative impact significantly on poverty of districts and city in Bengkulu Province.
4. Government expenditure has a negative impact significantly on poverty of districts and city in Bengkulu Province at α = 10%.

## SUGGESTIONS

Based on the results of the research and the conclusion, the result of the advice that the author is able to give in the research is, namely, below:
1. In order to build the districts and city in Bengkulu Province as a developed and superior region, it is expected that the government can maintain the stability of economic growth that has been sufficiently good by continuously using abundant SDA as well as SDM that has overwhelming quality.
2. Increased domestic investment has a broad and beneficial impact on the Indonesian economy in Bengkulu Province through multiplier effects in various economic sectors, so the government should pay special attention.
3. If the government focuses on feeding programmes, the poverty rate will decrease over time, but it will continue to increase over the next year. Therefore, it is advised that the government make a wise allocation of government spending in order to succeed in eradicating poverty both in the long term and in the short term.
4. The Governments of districts and city in Bengkulu Province are expected to be able to finance the reduction of poverty by adding the skills and skills of the less capable public, providing capital assistance and opportunities to the less able public to have enterprises in various fields, for example, in the fields of agriculture, planting, as well as fishing, which is very dominant in

these districts and city, and giving all access and employment opportunities to the less qualified public in order to provide impact and assistance to improve the human development that exists in the district.

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