

ANALYSIS OF THE EFFECT OF FISCAL POLICY ON THE POOR POPULATION IN INDONESIA

Nano Prawoto

Universitas Muhammadiyah Yogyakarta Indonesia

ARTICLE INFO

Keywords:

Fiscal Policy,
Poverty,
Panel Data

ABSTRACT

This study aims to analyze the effect of regional gross domestic product, population size, general allocation funds, regional government spending on education and health, and foreign investment in overcoming poverty in Indonesia. The model used in this research is panel data regression with the best Fixed Effect Model. The data used in this study is data sourced from the Indonesian Central Bureau of Statistics and the Ministry of Finance of the Republic of Indonesia from 2010-2020. The results of the study show that gross domestic regional income, General Allocation Fund, Health Budget, and foreign investment have an influence on the problem of poverty in Indonesia, an increase in these variables will reduce the number of poor people. An increase in population will increase the number of poor people. Meanwhile, the education budget carried out by the local government does not affect the number of poor people. The government needs to review activity programs to improve human resources through Elementary and Secondary Education throughout Indonesia.

E-mail:

nanopra@umy.ac.id

Copyright © 2023 Economic Journal. All rights reserved.

is Licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License \(CC BY-NC 4.0\)](#)

1. INTRODUCTION

John Friedmann (1992) in his book, *Empowerment, The Politics of Alternative Development*, defines poverty as an inequality of opportunities to accumulate a social power base. The base includes the productive capital of assets, such as land; financial resources; socio-political organizations to achieve common interests, such as political parties and cooperatives; and social networks to obtain adequate jobs, goods, knowledge, and skills.

The definition of poverty changes over time, and basically poverty is closely related to a person's inability to meet basic needs. Poverty is basically related to the inability of the population to meet basic needs (Mikelsen, 2003). The previous discussion argues that the measure of poverty should be linked to the degree of permanent mastery of individuals or families over goods and services. The problem is in determining a standard of comparison (Poverty Line) that will allow evaluation of comparable poverty rates for families of different sizes or compositions, in different places, and at different times (Watts, 1969).

The causes of poverty can occur due to several reasons, namely natural and economic conditions, structural and social conditions, and cultural (cultural) conditions. Natural and economic poverty arises due to limited natural, human, and other resources so that opportunities to produce goods are relatively small which results in a small contribution to development. Structural and social poverty results from uneven development results, poor institutional arrangements, and policies in development. Whereas cultural (cultural) poverty is caused by attitudes or life habits that feel adequacy so that it traps someone in poverty.

Based on the records of Indonesia's Central Statistics Agency (BPS) the number of poor people in Indonesia in September 2022 reached 26.36 million people. Compared to data on the number of poor people in March 2022, the number of poor people in Indonesia increased by 9.57 percent or an increase of 0.20 million people. One of the reasons for the increase in the number of poor people in Indonesia is Covid 19. The impact of Covid has reduced people's purchasing power and has had an impact on a decrease in GDP. From the covid case economic growth has an influence on the poor (Siregar, 2006). Economic growth will have a negative effect on the number of poor people is a mandatory requirement, while the condition for adequacy of economic growth must be effective in reducing poverty.

Education, health, and social protection are important components in efforts to improve the quality of human resources. Quality human resources will increase productivity and the economy which in turn will increase the nation's competitiveness. Increasing economic productivity will reduce the number of poor people (Todaro, 1995). In addition to this, Indonesia must be able to take advantage of the

demographic bonus in dealing with technological disruption. Developing the quality of human resources remains a priority agenda for the government.

The purpose of the research related to the problems above is how the influence of gross domestic product, population, general allocation funds, local government spending on education and health, and foreign investment in overcoming poverty in Indonesia and what is the role of each of these variables.

2. LITERATURE REVIEW

Research related to national income and poverty was conducted by de Haan et al., 2022 and Bonito et al., 2017 showing that economic growth has a negative effect on poverty. Meanwhile, research conducted by Aghaei & Lin (2022) concluded that an increase in GDP had an indirect effect on reducing the poor population in Iran. Another study conducted by Zhuang et al., 2009 concluded that financial sector development plays an important role in facilitating economic growth and poverty alleviation. Research conducted by Roemer & Gugerty (1997) provides strong support for the proposition that per capita GDP growth is a force in reducing poverty. The results of this study indicate that sound macroeconomic policies and openness to the world economy are important in reducing poverty.

Research conducted by Hasan (2015) on the impact of GDP growth rates on poverty alleviation in Nigeria. This study uses secondary data sourced from the statistical bulletins of the Central Bank of Nigeria and the National Bureau of Statistics between 1986 and 2012. GDP growth did not have a positive impact on the poor through creating enough jobs to reduce the unemployment rate and poverty rate during the study period.

Factors other than national income that affect poverty are the population. Research related to the relationship between population size and poverty was conducted by Desai (1992). The results of his research show that poverty is most significantly affected by population if households cannot afford education and health care for their children. Another study conducted by Cruz & Ahmed (2016) shows that rapid population growth will continue in the poorest countries for decades. At the same time, these countries will experience a sustained increase in the working-age share of their population, and this change has the potential to drive growth and reduce poverty.

The relationship between government spending on education and poverty has been studied by Gustafsson & Shi (2004) that household health and education spending has increased rapidly in rural China. Based on data from households in 18 provinces in 1988 and 1995, after taking these health and education expenditures into account, there is no relationship between poverty declining during this period of rapid economic growth. Another study conducted by Agyemang et al., 2018 concluded that fiscal decentralization has the potential to reduce poverty when characterized by greater financial autonomy from local units with appropriate budget allocations, priorities, accountability, and responsiveness. Meanwhile, research conducted by Omari & Muturi (2016) on poverty alleviation has been one of the policies pursued since independence in Kenya. This study investigates the effect of sectoral government spending on poverty rates in Kenya. The results of his research show that health sector spending has a positive and significant effect on the poverty rate and the effect of the education sector spending on the poverty rate is not significant. Meanwhile, research conducted by Asghar (2012) revealed that government spending on the health sector did not have a significant impact on poverty alleviation.

Research conducted by Huang et al., 2010 examines how outgoing FDI affects poverty. While economic growth and trade openness were found to be associated with lower poverty, net FDI had a negative impact on the average income of the poorest. This research is also supported by research by Do et al., 2021 that FDI has contributed to poverty alleviation not only directly but also indirectly through human resources. However, FDI indirectly exacerbates poverty through international trade. In addition, the empirical results from the spatial econometric model show that FDI tends to reduce poverty in the province. Meanwhile, another study conducted by Calvo & Hernandez. 2006 showed domestic as well as foreign investment was found to be a significant determinant of changes in poverty. The effect of FDI varies between countries, FDI reduces poverty only in certain circumstances, and fails in others.

3. METHOD

In this study the analytical model used is panel data regression with data from 20 provinces in 2010-2020 taken from data from the Indonesian Central Bureau of Statistics and the Ministry of Finance.

Panel data is a combination of time series data and cross data. Hsiao (2022), notes that the use of panel data in economic research has several main advantages compared to cross-sectional and time series data types. First, it can provide researchers with a large number of observations, increases the degree of freedom, data has large variability and reduces collinearity between explanatory variables, which can

produce efficient econometric estimates. Second, panel data can provide more information that cross section or time series data alone cannot provide. And third, panel data can provide a better solution in inferring dynamic changes than cross section data.

The Panel Regression Model used in this study:

$$POV = \alpha + b_1GDRP_{1it} + b_2POP_{2it} + b_3DAU_{3it} + b_4EDUC_{4it} + b_5HEAL_{5it} + b_6FDI_{6it} + e \quad (1)$$

Information:

POV = Poor People

α = Constant

GDRP = Product Regional Domestic Product

POP = Total Population

DAU = General Allocation Fund

EDUC = Education Budget

HEAL = Health Budget

FDI = Foreign Direct Investment

$b(1,2,...)$ = Regression coefficient of each independent variable

e = Error terms

t = Time

i = Province

In the regression model estimation method using panel data can be done through three approaches (Gujarati, 2002), including:

1. Common Effect Model (CEM)

This is the simplest panel data model approach because it only combines time series and cross section data. This model does not pay attention to the time or individual dimensions, so it is assumed that the behavior of company data is the same in various time periods. This method can use the Ordinary Least Square (OLS) approach or the least squares technique to estimate the panel data model.

2. Fixed Effect Model (FEM)

This model assumes that the differences between individuals can be accommodated from the intercept differences. To estimate the Fixed Effects panel data model using the dummy variable technique to capture differences in intercepts between companies, differences in intercepts can occur due to differences in work culture, managerial and incentives. However, the slopes are the same between companies. This estimation model is often also called the Least Squares Dummy Variable (LSDV) technique.

3. Random Effect Model (REM)

This model will estimate panel data where the disturbance variables may be related to each other over time and between individuals. In the Random Effect model, the difference in intercepts is accommodated by the error terms of each company. The advantage of using the Random Effects model is that it eliminates heteroscedasticity. This model is also called the Error Component Model (ECM) or the Generalized Least Square (GLS) technique.

Of the 3 models that have been formed, the best model is then selected by carrying out the Chow test and the Hausman test (Basuki & Prawoto, 2017). The Chow test is a test to determine the best model between the Fixed Effect Model and the Common/Pool Effect Model. If the results state that they accept the null hypothesis, then the best model to use is the Common Effect Model. However, if the results state that the null hypothesis is rejected, then the best model used is the Fixed Effect Model, and the test will continue to the Hausman test.

The Hausman test is a test to determine the most appropriate Fixed Effect or Random Effect model used in estimating panel data. If the results of the Hausman test state that they accept the null hypothesis, then the best model to use is the Random Effects model. However, if the results state that the null hypothesis is rejected, the best model used is the Fixed Effect model.

4. RESULTS AND DISCUSSION

The research model uses the Log model, the reason for using the log model is to obtain the elasticity coefficient and to see the main determining variables for overcoming poverty in Indonesia.

$$\text{LogPOV} = \text{Log}\alpha + b_1\text{LogGDRP}_{1it} + b_2\text{LogPOP}_{2it} + b_3\text{LogDAU}_{3it} + b_4\text{LogEDUC}_{4it} + b_5\text{LogHEAL}_{5it} + b_6\text{LogFDI}_{6it} + e \quad (2)$$

Based on Table 1, we can arrange the regression equations for the CEM, FEM and REM models according to equation (2) as follows:

Common Effect Model (3)

$$\text{LogPOV} = 0.425 - 0.173 \text{LogGDRP}_{1it} + 1.063 \text{LogPOP}_{2it} + 0.158 \text{LogDAU}_{3it} - 0.07 \text{LogEDUC}_{4it} + 0.074 \text{LogHEAL}_{5it} - 0.082 \text{LogFDI}_{6it} + e \quad (3)$$

Fixed Effect Model (4)

$$\text{LogPOV} = 14.556 - 0.31 \text{LogGDRP}_{1it} + 0.699 \text{LogPOP}_{2it} - 0.048 \text{LogDAU}_{3it} + 0.011 \text{LogEDUC}_{4it} - 0.02 \text{LogHEAL}_{5it} - 0.016 \text{LogFDI}_{6it} + e \quad (4)$$

Random Effect Model (5)

$$\text{LogPOV} = 11.875 - 0.286 \text{LogGDRP}_{1it} + 0.847 \text{LogPOP}_{2it} - 0.055 \text{LogDAU}_{3it} + 0.003 \text{LogEDUC}_{4it} - 0.015 \text{LogHEAL}_{5it} - 0.021 \text{LogFDI}_{6it} + e \quad (5)$$

Table 1: Panel Data Model Regression Equation Results

Variable	Symbol	Coefficient		
		CEM	FEM	REM
Gross Regional Domestic Income	LOG(PDRB)	-0.173	-0.311	-0.2861
		-2.954***	-5.839***	-5.32667***
Population	LOG(POP)	1.065	0.699	0.847625
		18.255***	5.997***	9.365589***
General Allocation Fund	LOG(DAU)	0.158	-0.048	-0.05521
		4.452***	-2.649***	-3.46308***
Education Budget	LOG(EDU)	-0.07	0.011	0.003341
		-3.101***	1.527	0.465033
Health Budget	LOG(HEALTH)	0.074	-0.02	-0.01457
		2.629***	-2.396***	-1.80475***
Foreign investment	LOG(FDI)	-0.082	-0.016	-0.02065
		-6.703***	-4.05***	-4.71836***
Constant	C	0.425	14.556	11.87585
		0.311	8.227***	8.123274***
R-squared		0.919	0.995	0.47922
F-statistic		400.135***	1697.449***	32.66702***
Chow Test			538.998***	
Hausman Test				19.678***
Jarque-Bera			3.743361	

Information:

*** significant at $\alpha = 1\%$

** significant at $\alpha = 5\%$

* Significant at $\alpha = 10\%$

After the CEM, FEM and REM equations are formed in Table 1, the best model is selected. The indicator for selecting the best model is carried out by the Chow test and Hausman test (Gujarati, 2022). The Chow test is a test to determine the most appropriate Common Effect or Fixed Effect model used in estimating panel data. The Chow Test value in Table 1 shows a value of 538,998 with a prob value. $0.000 <$ from the value of $\alpha = 0.05$ Maha Ho is rejected, so the best model is the Fixed Effect Model. While the Hausman test is a test to determine the most appropriate Fixed Effect or Random Effect model used in estimating panel data. The Hausman Test value in Table 1 is 19,678 with a prob value. $0.000 <$ from the value of $\alpha = 0.05$ Maha Ho is rejected, so the best model is the Fixed Effect Model

After selecting the best model (Fixed Effect Model), then the classical assumption test is performed. The panel data model needs to meet the BLUE (Best Linear Unbiased Estimator) requirements or be free from violations of basic assumptions (classical assumptions). In this case only the heteroscedasticity test and multicollinearity test were used. The heteroscedasticity test is used to see whether the residuals of the model formed have a constant variance or not. A good model is a model that has a constant variance of each

disturbance or residual. Heteroscedasticity is a condition where the assumption is not met, in other words where is the expected error and is the variance of the error which differs in each time.

Table 2: Heteroscedasticity Test

Dependent Variable: LOG(RESID^2)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(PDRB)	0.976303	1.804096	0.541159	0.589
LOG(POP)	-3.949813	3.599261	-1.097396	0.2738
LOG(DAU)	-0.327508	0.544916	-0.601024	0.5485
LOG(EDU)	0.071091	0.235891	0.301374	0.7635
LOG(HEALTH)	-0.071255	0.258076	-0.276102	0.7828
LOG(FDI)	-0.055052	0.147775	-0.372541	0.7099
C	32.35082	58.66677	0.551433	0.582
R-squared	0.135765	Mean dependent var	-6.683727	
F-statistic	1.219042	S.D. dependent var	2.284064	
Prob(F-statistic)	0.226321	Durbin-Watson stat	2.045374	

From Table 2 all the independent variables have no effect on the residual variables. This can be seen in the probability value of more than 0.05, this shows that the Fixed Effect Model fulfills the classic assumption of homoscedasticity. The existence of a strong correlation between the independent variables in the formation of a model (equation) is not recommended to occur, because it will affect the accuracy of parameter estimation, in this case the regression coefficient, in estimating the true value. A strong correlation between independent variables is called multicollinearity. From Table 3 the correlation values between all variables are below the value of 0.9, meaning that the Fixed Effect Model does not indicate multicollinearity.

Table 3: Multicollinearity Test

Variable	PDRB	POP	DAU	EDU	HEALTH	FDI
PDRB	1.000000	0.828850	0.232274	0.204193	0.633308	0.513277
POP	0.828850	1.000000	0.363222	0.060552	0.550080	0.303613
DAU	0.232274	0.363222	1.000000	0.457772	0.478597	0.263412
EDU	0.204193	0.060552	0.457772	1.000000	0.477457	0.237227
HEALTH	0.633308	0.550080	0.478597	0.477457	1.000000	0.343613
FDI	0.513277	0.303613	0.263412	0.237227	0.343613	1.000000

Based on the selected model equation (4) as follows:

$$\text{LogPOV} = 14.556^{***} - 0.31 \text{LogGDRP}_{1it}^{***} + 0.699 \text{LogPOP}_{2it}^{***} - 0.048 \text{LogDAU}_{3it}^{***} + 0.011 \text{LogEDUC}_{4it} - 0.02 \text{LogHEAL}_{5it}^{***} - 0.016 \text{LogFDI}_{6it}^{***} + e \quad (4)$$

The coefficient of -0.31 means that there is a negative relationship between gross regional domestic product and the poor. If there is an increase in gross regional domestic product by 1%, it will reduce the number of poor people by 0.31%. The results of this study are in accordance with research conducted by de Haan et al., 2022 and Bonito et al., 2017. Their research shows that economic growth has a negative effect on poverty.

The coefficient of 0.699 means that there is a positive relationship between the population and the poor. If there is an increase in the population of 1%, it will increase the number of poor people by 0.699%. The results of this study are in accordance with the research conducted by Hossain (2008). The results of his research concluded that the rapid urbanization of areas caused by large-scale migration of rural residents caused most of the population to live in slums and squatters and live below the poverty line. This is due to the rapid regional growth that is not proportional to its development.

The coefficient of -0.048 means that there is a negative relationship between the general allocation fund and the poor. If there is an increase in the general allocation fund of 1%, it will reduce the number of poor people by 0.048%.

The coefficient of 0.011 means that there is no relationship between the regional budget for education and the poor. If there is an increase in the spending budget for educators by 1%, it will not affect the poor.

The coefficient of -0.02 means that there is a negative relationship between the regional budget for health and the poor. If there is an increase in the budget for health by 1%, it will reduce the number of poor

people by 0.02%. The results of this study are consistent with research by Gupta et al., 2003 assessing the relationship between public spending on health care and the health status of the poor. The poor have significantly worse health status than the non-poor and the regression results provide new evidence that public spending on health care matters more for the poor.

The coefficient of -0.016 means that there is a negative relationship between foreign direct investment and the poor. If there is an increase in foreign direct investment of 1%, it will reduce the number of poor people by 0.016%. The results of this study are in accordance with research conducted by Dhrifi et al., 2020. The findings also show a significant negative relationship between FDI and poverty for all groups of Asian and Latin American countries.

Although from the results of the analysis, the education budget has no effect on poverty alleviation, Heckman (2011), a Nobel laureate economist in 2000 emphasized the importance of educational interventions in the early age group which provide higher returns than interventions in the adult age group. For this reason, the Indonesian government in 2020 launched the Family Hope Program (PKH), the Smart Indonesia Program (PIP), the Program for the Acceleration of Prevention of Dwarfs, as well as expanding access to education to break the cycle of poverty and prevent intergenerational poverty. National Education Law obliges the government to allocate 20 percent of the state budget for education.

5. CONCLUSION

Based on the analysis results, the biggest role in alleviating regional poverty is increasing the General Allocation Fund (DAU) for development. The General Allocation Fund is a transfer fund from the Central Government to the Regions which is allocated with the aim of reducing disparities in financial capacity and public services between regions. With the DAU, development funding becomes larger, thus increasing development targets and goals, especially poverty alleviation, is increasingly being realized.

The second role in alleviating poverty is regional economic growth (GDRP), an increase in GDRP will reduce the number of poor people. Policies to improve poverty in the short term that can be carried out by local governments include creating employment opportunities, increasing income, and improving income distribution.

Budgets for health and foreign direct investment have a significant relationship in overcoming the problem of poverty in Indonesia, but the results are less effective. This can be seen from the low elasticity of the coefficients for health spending and foreign direct investment.

Population development is a driver and at the same time an obstacle to overcoming the problem of the poor, so that the government's role in limiting population growth becomes an important role in reducing the poor. The problem of poverty will be resolved through increased effectiveness and inclusive economic growth. At the macro level, the government encourages inclusive economic growth, maintains macroeconomic stability, stabilizes prices, creates productive jobs, maintains the investment climate, maintains trade regulations, increases the productivity of the agricultural sector, and develops infrastructure in lagging areas.

REFERENCE

- [1] Asghar, N., Hussain, Z., & Rehman, H. U. (2012). The impact of government spending on poverty reduction: Evidence from Pakistan 1972 to 2008. *African Journal of Business Management*, 6(3), 845.
- [2] Aghaei, M., & Lin Lawell, C. Y. C. (2022). Energy, economic growth, inequality, and poverty in Iran. *The Singapore Economic Review*, 67(02), 733-754.
- [3] Agyemang-Duah, W., Kafui Gbedoho, E., Peprah, P., Arthur, F., Kweku Sobeng, A., Okyere, J., & Mengba Dokbila, J. (2018). Reducing poverty through fiscal decentralization in Ghana and beyond: A review. *Cogent Economics & Finance*, 6(1), 1476035.
- [4] Bonito, J. D. M., Daantos, F. J. A., Mateo, J. C. A., & Rosete, M. (2017). Do entrepreneurship and economic growth affect poverty, income inequality and economic development. *Review of Integrative Business and Economics Research*, 6(1), 33-43.
- [5] de Haan, J., Pleninger, R., & Sturm, J. E. (2022). Does financial development reduce the poverty gap? *Social Indicators Research*, 161(1), 1-27.
- [6] Desai, M. (1992). Population and poverty in Africa. *African Development Review*, 4(1), 63-78.
- [7] Dhrifi, A., Jaziri, R., & Alnahdi, S. (2020). Does foreign direct investment and environmental degradation matter for poverty? Evidence from developing countries. *Structural Change and Economic Dynamics*, 52, 13-21.
- [8] Friedmann, J. (1992). *Empowerment: The politics of alternative development*. John Wiley & Sons.

- [9] Gujarati, D. N. (2022). *Basic econometrics*. Prentice Hall.
- [10] Gupta, S., Verhoeven, M., & Tiongsong, E. R. (2003). Public spending on health care and the poor. *Health economics*, 12(8), 685-696.
- [11] Hassan, O. M. (2015). The impact of the growth rate of the gross domestic product (GDP) on poverty reduction in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences*, 6(3), 221-230.
- [12] Heckman, J. J. (2011). The economics of inequality: The value of early childhood education. *American Educator*, 35(1), 31.
- [13] Hossain, S. (2008). Rapid Urban Growth and Poverty in Dhaka City. *Bangladesh e-journal of sociology*, 5(1).
- [14] Hsiao, C. (2022). *Analysis of panel data* (No. 64). Cambridge university press.
- [15] Huang, C. H., Teng, K. F., & Tsai, P. L. (2010). Inward and outward foreign direct investment and poverty: East Asia vs. Latin America. *Review of World Economics*, 146, 763-779.
- [16] Mikkelsen, B. (2005). *Methods for development work and research: a new guide for practitioners*. Sage.
- [17] Omari, L. V., & Muturi, W. (2016). The effect of government sectoral expenditure on poverty level in Kenya. *Journal of Economics and Sustainable Development*, 7(8), 219-242.
- [18] Roemer, M., & Gugerty, M. K. (1997). *Does economic growth reduce poverty?* Cambridge, MA: Harvard Institute for International Development.
- [19] Siregar, H. 2006. *Perbaikan Struktur dan Pertumbuhan Ekonomi: Mendorong Investasi dan Menciptakan Lapangan Kerja*. Jurnal Ekonomi Politik dan Keuangan. INDEF. Jakarta.
- [20] Todaro, M. P. (1995). Reflections on economic development. *Books*.
- [21] Warr, P. (2003). Fiscal policies and poverty incidence: the case of Thailand. *Asian Economic Journal*, 17(1), 27-44.
- [22] Watts, H. W. (1969). *An economic definition of poverty* (No. 1907-2017-1986).
- [23] Zhuang, J., Gunatilake, H. M., Niimi, Y., Khan, M. E., Jiang, Y., Hasan, R., ... & Huang, B. (2009). Financial sector development, economic growth, and poverty reduction: A literature review. *Asian Development Bank Economics Working Paper Series*, (173).