

The Effectiveness of Local Government Spending on Poverty Rate Reduction in Central Java, Indonesia

By

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ABSTRACT

During the 2017-2019 period, Central Java performed well in poverty alleviation. It turns out that the reduction of poverty in Central Java has a major contribution in reducing the poverty rate nationally, Indonesia. This poverty reduction could occur due to an increase in the regional aggregate government expenditure budget in Central Java. This study aimed to determine the effect of regional spending by function on poverty levels in districts/cities in Central Java using panel data regression. The model chosen is the Fixed Effect Model with the SUR approach. The results show that regional spending on health, education, and social protection negatively affects poverty levels. On the other hand, spending in the economic sector has a significant but positive impact on the poverty level. Meanwhile, spending on infrastructure does not show a significant effect on reducing poverty in Central Java. The government needs to maintain financial management in the health, education, and social assistance functions, as well as carry out further studies related to budget allocations in the economic and infrastructure sectors.

Keywords: poverty, poverty reduction, government spending, fixed effect model

ABSTRAK

Selama periode 2017-2019, Jawa Tengah menunjukkan upaya yang baik dalam pengentasan kemiskinan. Pengentasan kemiskinan di Jawa Tengah memiliki kontribusi besar dalam menurunkan angka kemiskinan secara nasional di Indonesia. Penurunan kemiskinan ini diduga dapat terjadi karena adanya peningkatan anggaran belanja pemerintah daerah secara agregat di Jawa Tengah. Penelitian ini bertujuan untuk mengetahui pengaruh belanja daerah menurut fungsi terhadap tingkat kemiskinan di kabupaten/kota di Jawa Tengah dengan menggunakan regresi data panel. Model yang dipilih adalah Fixed Effect Model dengan pendekatan SUR. Hasil penelitian menunjukkan bahwa belanja daerah untuk kesehatan, pendidikan, dan perlindungan sosial berpengaruh negatif terhadap tingkat kemiskinan. Di sisi lain, pengeluaran di sektor ekonomi berdampak signifikan namun peningkatan pengeluaran di sektor ini malah akan meningkatkan kemiskinan. Sementara itu, belanja infrastruktur tidak menunjukkan pengaruh yang signifikan terhadap pengurangan kemiskinan di Jawa Tengah. Pemerintah perlu menjaga pengelolaan keuangan pada fungsi kesehatan, pendidikan, dan bantuan sosial, serta melakukan kajian lebih lanjut terkait alokasi anggaran di sektor ekonomi dan infrastruktur.

Kata Kunci: kemiskinan, pengentasan kemiskinan, pengeluaran pemerintah, fixed effect model

INTRODUCTION

Poverty is a very complex problem that burdens every country, even in developed countries. This is because poverty is multidimensional, related to various aspects of human life, be it economic, political, socio-cultural, and other aspects of life. At the beginning of the 21st century, the world responded to poverty by setting up a target in the Declaration of the Millennium Development Goals (MDGs). This target is to reduce the number of poor people by up to 50% in 15 years. However, at the end of the MDGs period, this target has not been fully achieved. Poverty is still a fundamental problem for countries in the world. At the end of 2015, member states of the United Nations (United Nations) again agreed on a universal development agenda known as the Sustainable Development Goals or SDGs. The SDGs are a continuation of the MDGs with a more comprehensive development target.

In the SDGs, poverty alleviation is the first and foremost goal. Poverty reduction is considered to be the backbone of the achievement of the other 16 SDGs goals. Now, "end poverty in all forms everywhere" is the primary development theme and sustainable agenda in various countries as the background for various other development goals.

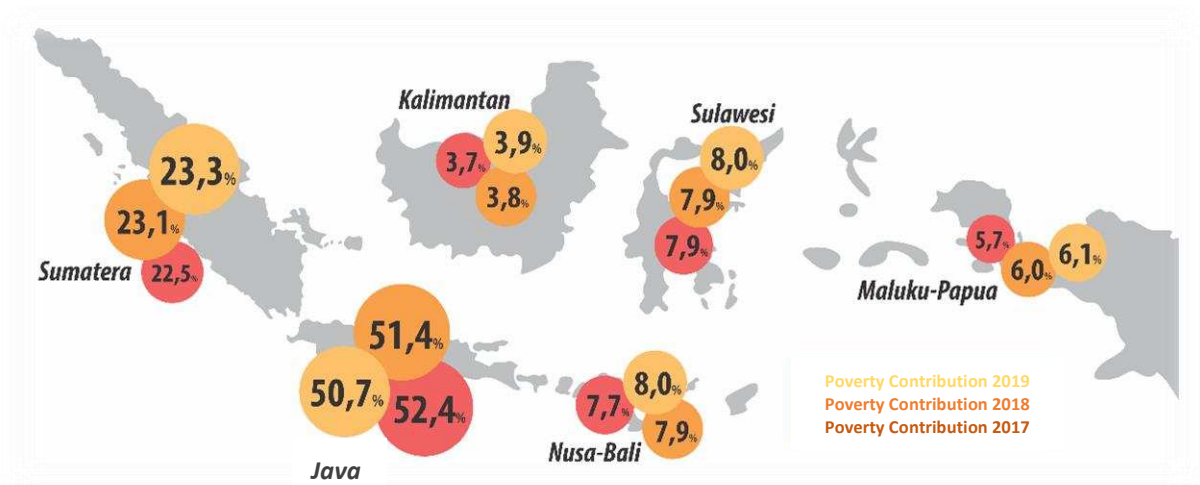


Figure 1. Poverty by Region in Indonesia, 2017-2019

In Indonesia, the government gives great attention to creating a prosperous civilization so that development programs implemented always include poverty reduction efforts. This is proven by the decreasing poverty rate in Indonesia over the last 20 years. Indonesia succeeded in reducing the poverty rate from 23.43 in 1999 to 9.22% in 2019. However, with the fourth-largest population in the world, in absolute terms, the number of poor Indonesians is still relatively large, reaching 24.8 million people. When viewed by region, as shown in Figure 1, during 2017-2019, more than half of Indonesia's poor live on Java Island.

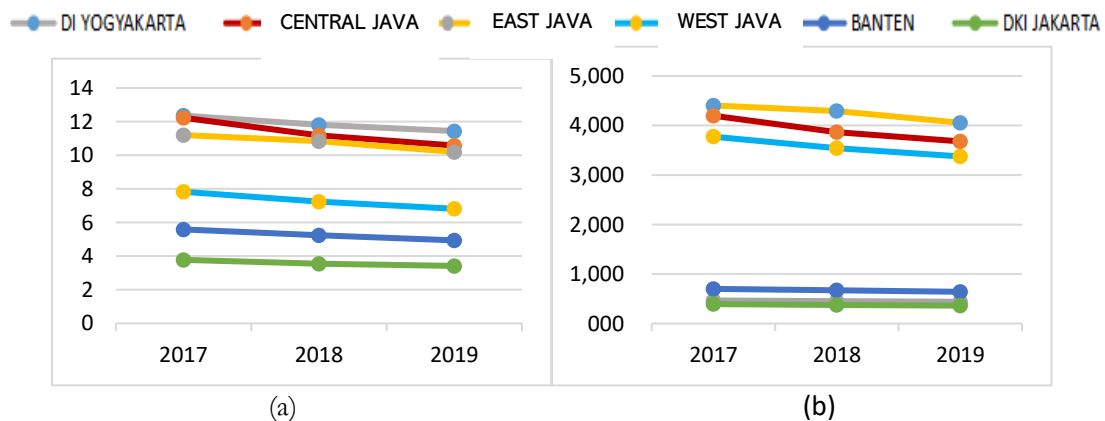


Figure 2. (a) Poverty Percentage, 2015-2019
(b) Poor Population (thousnads), 2015-2019

In Java Island, if we compare between provinces based on the number of poor people and the percentage of poverty, Central Java Province has been in a weak position for the last five years. Based on the number of poor people, Central Java is the second position as the biggest contributor to Indonesia's poverty after East Java. On the other hand, Central Java is also in second place with the largest percentage of poor people in Java after DI Yogyakarta. The achievement of poverty reduction in Central Java has not met the targets stated in the RPJMD (Regional Medium Term Development Plan). As stated in table 1, the achievement of the poverty rate in Central Java in 2018 has still not reached the target that should have been in the range of 10.40 - 9.93. In 2019, the poverty rate in Central Java also did not touch the target, which was 10.57, compared to 10.58.

Table 1. Target and Achievement of the Percentage of Poor People in 2017-2019

	2017	2018	2019
Target	10.40	9.93	10,57
Achievment	12,23	11,19	10,58

However, Central Java had exceeded the one-digit reduction in the poverty rate from 12.23% in 2017 to 11.19% in 2018. This one-digit reduction in the poverty rate was a very satisfying achievement and can be said to be a separate history in poverty alleviation in Central Java. This poverty reduction in Central Java also has a key role in reducing poverty in Indonesia. From 2017, Central Java has contributed to alleviating 25.08% of Indonesia's poor population. Furthermore, in 2018, Central Java succeeded in reducing the number of poor people from 4.20 million to 3.87 million. This decline contributed as much as 30.33% to reducing Indonesia's poor population, which is the greatest contribution compared to other provinces. In 2019, Central Java again played a role in reducing Indonesia's poor population by 21.16%.

With the big role of Central Java in national poverty reduction over the last three years (2017-2019), all Central Java Province policies should always be on target, especially those related to poverty issues. Therefore, various in-depth studies are needed concerning the factors that can affect the poverty rate in Central Java. One of the factors that play a vital role in reducing the poverty rate is government spending.

In Indonesia, local government expenditures are arranged in the Regional Income and Expenditure Budget (APBD). The APBD is the basis for regional financial management with the main functions of authorization, planning, supervision, allocation, and distribution. All government expenditures for regional development must comply with the amounts and targets set in the APBD. Based on this, this study proposes to determine the general description and the effect of government spending on poverty levels in Central Java.

METHODS

This research covers 35 districts/cities in Central Java in the 2015-2019 time period. The data used is secondary data in the form of the percentage of poor people obtained from the Central Bureau of Statistics (BPS) and regional expenditure from the Ministry of Finance. The list of variables used is in table 2.

Table 2. List Of Variables In the Research

Variable	Operational Definition	Unit
POV	Percentage of poor people: people below the poverty line per total population	Percent
HLT	Regional spending in the health sector	100 billions of Rupiah
EDU	Regional spending on education	100 billions of Rupiah
ECO	Regional spending in the economic sector	100 billions of Rupiah
INFR	Shopping areas in the field of housing and public facilities	100 billions of Rupiah
SOC	Regional spending in the field of social protection	100 billions of Rupiah

The method used is panel data regression by selecting the best model between the Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (REM). The best model selection was carried out by the Chow test, Hausman test, and the Breusch Pagan LM (BPLM) test. If the Chow test shows that FEM is the better model, then it is followed by the Hausman test to choose between FEM or REM, which is the best model. However, if the Chow test the best model is CEM, then the Breusch Pagan LM test is used to choose between CEM or REM.

Testing of the residual variance-covariance structure is carried out if the selected model is CEM or FEM. This test is done to check homoscedastic assumptions using the LM test. If it meets the homoscedastic assumption, the estimation method used is OLS. However, if it does not meet these assumptions, then it is continued with cross-sectional correlation testing using the λ LM test. If the results show a cross-sectional correlation, the estimation method uses the Generalized Least Square (GLS). If there is no cross-sectional correlation, the estimation uses a Feasible Generalized Least Square (FGLS) with Seemingly Unrelated Regression (SUR).

If the estimation method used is OLS, then the classic assumptions such as normality, homoscedasticity, non-multicollinearity, and non-autocorrelation must be fulfilled. Meanwhile, if using the GLS / FGLS estimation method, the classical assumptions that must be tested are only normality and non-multicollinearity (Gujarati & Damodar, 2011). After the classical assumptions are fulfilled, a model evaluation is carried out by considering the variables' significance. The research model is as follows:

$$POV_{it} = \alpha_i + \beta_1 HLT_{it} + \beta_2 EDU_{it} + \beta_3 ECO_{it} + \beta_4 INFR_{it} + \beta_5 SOC_{it} + \varepsilon_{it}$$

Notes:

POV = Percentage of poor people

HLT_{it} = Regional expenditure in the health sector for the i-th district/city in the t-year

EDU_{it} = Regional expenditure in the education sector for the i-th district/city in the t-year

ECO_{it} = Regional expenditure in the economic sector for the i-th district/city in the t-year

$INFR_{it}$ = Regional expenditure on housing and public facilities sector for the i-th district/city in the t-year

SOC_{it} = Regional expenditure in social protection sector for the i-th district/city in the t-year

ε_{it} = Error in the i-th individual t-year

RESULTS AND DISCUSSIONS

Central Java Province has an area of approximately 3.25 million hectares or around 25.04% of Java and 1.07% of the total area of Indonesia. Central Java is the third most populous province in Java after West Java and East Java. In 2019, Central Java's population reached 34.55 million with a population density of 1,058 people/km². Central Java is the 5th most populous province after West Java and DI Yogyakarta. Central Java Province itself is divided into 29 districts and 6 cities.

Based on Figure 3, it is generally known that the poverty rate in districts/cities in Central Java has always decreased every year during the 2017-2019 period. In 2016, Central Java's poor population reached 4.2 million, then decreased to 3.9 million in 2018 and 3.7 million in 2017. The poor population is spread out in the range of 9 thousand to 300 thousand poor people in each district/city. The percentage of poverty in each district/city is in the range of 4.62% -20.32% in 2017, 4.14% -17.58% in 2018, and 3.98% -16.63% in 2019. The gap between the regions with the highest and lowest poverty rates is getting smaller from year to year. This indicates that poverty reduction and the development gap in Central Java Province is heading in a better direction.

Wonosobo, Kebumen, and Brebes are the three poorest areas in Central Java, with a poverty rate reaching more than 16% in 2019. This poverty rate has a big gap compared to the regions with the lowest poverty rate, Semarang City, which only touched 3.98% in 2019. This occurs because rural communities generally dominate the poverty structure in Central Java. Nearly 2.08 million, or around 56.45% of the poor, come from rural areas. As a result, districts/cities that are dominated by rural areas tend to have high levels of poverty. On the other hand, districts/cities that are dominated by urban areas, such as Semarang City, tend to have low poverty rates.

From 2017-2019, the budget allocation from the variables used in this study covered more than 68% of the total district/city government spending in Central Java, while the remaining 32% was allocated to other functions such as public services, environment, tourism & culture, and order & security. Education spending is the largest expenditure share, with an average allocation always above 30% of total regional spending, but this allocation is decreasing every year. The sector with the expenditure share that always increases every year is the health sector. On average, in each district/city, the allocation to the health sector increased from 16.2% in 2017 to 17.18% in 2019. The sector with a relatively has small share is the social protection sector, which is only around 1% of the total government expenditure in each district/city.

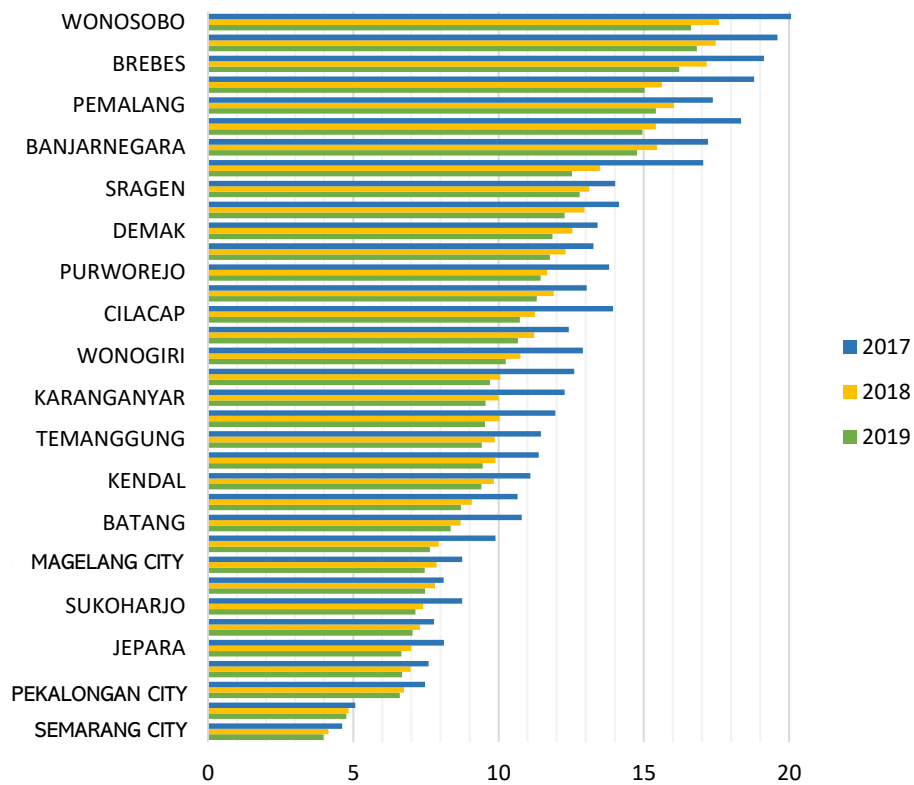


Figure 3. Percentage of Poor People in Districts/Cities, Central Java

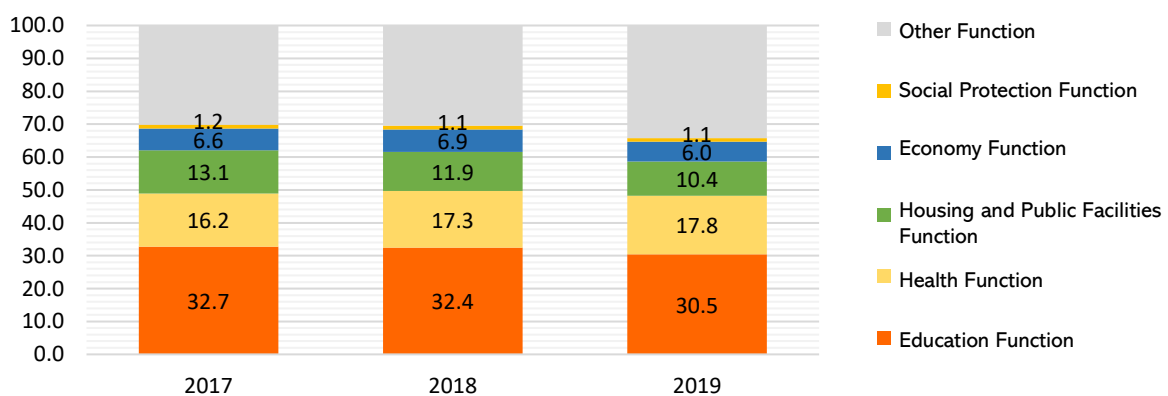


Figure 4. Average Allocation of District/City Government Expenditure Realization in Central Java By Function (2017-2019)

Based on the Chow test and the Hausman test, the appropriate model in this study is the Fixed Effect Model (FEM). Then based on the LM and LM tests, it is known that the residual variances of the FEM model are heteroscedastic. There is also a cross-sectional correlation on the variance-covariance

structure so that the FEM model estimation method uses SUR-PCSE (Seemingly Unrelated Regression-Panel Correlation Standard Error).

For a model that uses estimation with FGLS, the classic assumptions that must be fulfilled are only normality and non-multicollinearity. The normality test shows that it fails to reject H_0 , so it can be said that the assumption of normality is fulfilled. Furthermore, the test of non-multicollinearity assumption can be seen from the correlation value between the independent variables. The correlation between variables in this study is generally less than 0.85, so it can be said that the resulting model avoids multicollinearity problems.

Table 3. Summary of tests in selecting the best model

Testing	Information Hypothesis zero (H_0)	<i>p-value</i>
Chow test	The CEM model is fit model	0.0000
Hausman test	The REM model is fit model	0.0000
LM test	There is no heteroscedasticity	0.6400
LM test	No <i>cross-sectional correlation</i>	0.0000
Normality test	Normally distributed <i>errors</i>	0.9042

By estimating using FEM-SUR, 4 of 5 independent variables were used (health, education, economic, and social variables), significant at $\alpha = 5\%$ (see Table 5). The fixed-effect model also produces individual effects for each district/city where this effect will be included in the intercept, thereby increasing the poverty percentage value variation. In other words, this individual effect comes from other influences outside the influence of the model's variables, or it can be said to be due to the regional behavior/conditions. The region with the largest individual effect is Cilacap, meaning that if all the independent variables used in the model are assumed to be constant, Cilacap has the highest poverty rate. Meanwhile, the smallest individual effect is in Semarang City, which means that if all independent variables are assumed to be constant, then Semarang City has the lowest poverty level. The complete individual effects can be seen in appendix 6.

Table 5. Results of Parameter Estimation Using FEM-SUR

Variable	Coefficient	<i>p-value</i>
intersep	13,0529	0,0000
POV	-0,0306	0,0170
HLT	-0,0587	0,0000
EDU	0,1007	0,0084
ECO	-0,0275	0,4854
INFR	-0,5300	0,0016

Based on parameter estimates, regional spending in the health sector has a significant effect on the poverty level with a coefficient value of -0.0306. This value indicates that for every Rp. 100 billion increase in the health budget, the percentage of poor people will decrease by 0.03. This study's results are in accordance with existing theories and line with research by Omari & Muturi (2016), which states that government spending in the health sector will increase per capita consumption then reduce poverty levels. Furthermore, regional spending on education also has a significant effect on the poverty level, with a coefficient value of 0.0587. This value indicates that if the government increases the education budget by IDR 100 billion, then the percentage of poor people will decrease by 0.06. This study's results are in line with existing theories and line with research by Asghar (2012) and Bahtera et al., (2018).

Regional expenditure in the economic sector also has a significant effect on the poverty level with a positive coefficient value of 0.1007, which means that an increase in the economic sector budget will actually increase the level of poverty. This result is not in accordance with the existing theory. However, several studies such as that conducted by Nabeela Asghar (2012) show similar results. Results like this may indicate that budget allocations in the economic sector have not been effective in

reducing poverty. This can be due to the difficulty of access for the poor or the middle and lower class economies to benefit from regional spending in the economic sector. Another possibility is that the allocation of the economic sector budget is more concentrated in urban areas than in rural areas, even though the poverty rate in rural areas is higher than in urban areas. Regional government spending in Central Java may not have succeeded in targeting basic things such as reducing unemployment, increasing worker productivity, encouraging small and medium enterprises, etc. It is not effective enough to increase the standard of living of people below the poverty line.

Meanwhile, regional spending on social protection has a significant effect on poverty. These results are in accordance with the theory and in line with research conducted by Prasetyo (2015). The resulting coefficient value is -0.53, which indicates that if the government increases the Rp 100 billion budget for social protection, the percentage of poor people will decrease by 0.53. With this coefficient value, the budget for social protection can be the variable that most influences the poverty rate reduction compared to other variables. This can occur because, in general, the social protection budget is allocated for social assistance that is directly targeted at the poor. This is why the social protection budget is effective in reducing poverty levels.

Local spending in infrastructure shows theoretical but insignificant results, so these results are meaningless. Research conducted by Omodero (2019) also showed similar results. From these results, it can be indicated that the government's funds for regional infrastructure are not effective enough to reduce poverty in Central Java. The government needs to review the allocation of funds in the infrastructure sector to encourage a reduction in the poverty rate in districts/cities in Central Java.

CONCLUSIONS

Based on the results and discussion that has been done, it can be concluded that the poverty rate in districts/cities in Central Java always decreased during the 2017-2019 period. The resulting regression model shows that regional spending on health, education, and social protection has a significant effect on poverty reduction. Among the three, spending on social protection is the most effective expenditure in reducing poverty in Central Java. The government needs to keep the efficient use of budgets in these three areas, especially the budget in social protection, while still fitting budget allocations according to their respective regions' needs. Meanwhile, regional spending in the economic and infrastructure sector needs more review so that its implementation can target the middle to lower economic community and reduce the level of poverty.

This study's results also indicate that regions close to the provincial government center tend to be regions with a low poverty level, such as Semarang City. On the other hand, regions far from the provincial government center tend to be regions with a high poverty level, such as Cilacap. For further research, it is necessary to do spatial analysis.

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