

**ANALYSIS OF DETERMINANTS OF POOR POPULATION
IN CENTRAL JAVA 2008-2017**

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ABSTRACT

One of the indicators socio-economic the success of development is a decrease in the number of poor people. Central Java is the province with the second largest number of poor people after East Java Province. This study aims to determine the effect of population growth rate, GDRP per capita life expectancy (AHH), mean years of schooling (RLS) and purchasing power parity simultaneously and partially on the number of poor people in Central Java from 2008-2017. This study uses secondary data by using program Stata 14, the analysis technique used is multiple linear regression panel data. The results of the study showed that the population growth rate, GDRP per capita, life expectancy (AHH), mean years of schooling (RLS) and purchasing power parity simultaneously have a significant effect on the number of poor people. Partially, population growth rate, life expectancy, and means years of schooling have a negative and significant influence on the number of poor people. While the GDRP per capita and purchasing power parity do not have a significant effect on the number of poor people in Central Java. Various government policies and programs should continue to be rolled out to isolated areas so that increased income can be balanced with equitable development. Keywords: number of poor people, population growth rate, GDRP per capita, life expectancy (AHH), mean years of schooling (RLS), purchasing power parity.

ABSTRAK

Salah satu tolak ukur sosial ekonomi dalam menilai keberhasilan pembangunan yang dilakukan pemerintah di suatu daerah yaitu pengurangan jumlah penduduk miskin. Jawa Tengah merupakan provinsi dengan jumlah penduduk miskin terbanyak kedua setelah Provinsi Jawa Timur. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh Laju Pertumbuhan Penduduk (LPP), PDRB per kapita, Angka Harapan Hidup (AHH), Rata-Rata Lama Sekolah (RLS), dan Pengeluaran Per Kapita (PPP) secara simultan dan parsial terhadap jumlah penduduk miskin kabupaten/kota di Jawa Tengah dari tahun 2008-2017. Penelitian ini menggunakan data sekunder dengan menggunakan program Stata 14, teknik analisis yang digunakan adalah regresi linier berganda data panel. Berdasarkan hasil analisis menunjukkan bahwa Laju Pertumbuhan Penduduk (LPP), Angka Harapan Hidup (AHH), PDRB per kapita, Rata-Rata Lama Sekolah (RLS), dan Pengeluaran Per Kapita (PPP) secara simultan berpengaruh signifikan terhadap jumlah penduduk miskin. Secara parsial, LPP, AHH dan RLS memiliki pengaruh negatif dan signifikan terhadap jumlah penduduk miskin. Sedangkan PDRB per kapita dan Pengeluaran per kapita tidak berpengaruh signifikan terhadap jumlah penduduk miskin di Jawa Tengah. Hendaknya berbagai kebijakan dan program pemerintah terus digulirkan hingga ke pelosok daerah sehingga peningkatan pendapatan dapat diimbangi dengan pemerataan pembangunan.

Kata kunci :jumlah penduduk miskin, laju pertumbuhan penduduk, PDRB per kapita, angka harapan hidup, rata- rata lama sekolah, pengeluaran per kapita.

INTRODUCTION

Development is a process related to major developments in the social hierarchy, community behavior, institutions, economic growth, inequality in income distribution and absolute poverty control (Todaro Michael P and Smith, Stephen C. 2011: 11). One of the objectives of national development is to improve economic performance by opening employment opportunities and managing a better life to achieve prosperity.

Indonesia is a country that has the fourth most populous population. The population of Indonesia in 2017 reached 257.9 million with a population growth rate of 1.49 percent. This shows that every year Indonesia's population increases 3.9 million. The large population as a result of the rate of population growth has a negative impact on the socio-economic life of the community, such as poverty, inequality, income distribution, hunger, and others. Poverty is one of the problems in economic development.

Poverty is a condition of life that is in a shortage where the expenditure per capita in one month is unable to meet the standard of minimum living needs. The poverty line describes the minimum standard requirements to meet

the minimum needs of food and non-food. Minimum food requirements equal to 2100 kilocalories per capita per day and non-food needs can be in the form of housing, clothing, education and health needs (bps.go.id).

Based on figure 1 below, the poor population in Indonesia tends to decline, in 2012 amounting to 28.59 million people and decreased to 27.72 million in 2014. But in 2015 the poor population in Indonesia increased to 28.51 million. This is because the price of basic goods needs during this period has increased, the average price of rice has increased by 14.48 percent, and the average wage of farm workers has decreased by 1.34 percent compared to September 2014 (Kharimaswati, 2015).

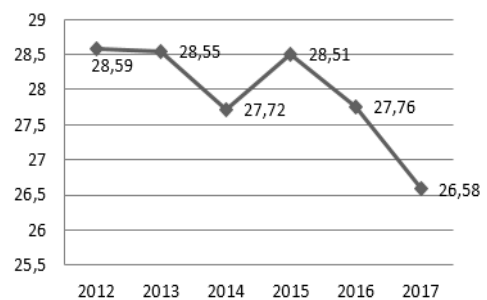


Figure 1. Development of Poor Populations in Indonesia
Source: BPS, data processed (2018)

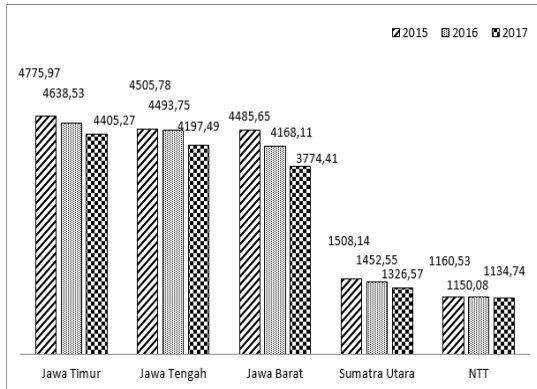


Figure 2 The Big Five Provinces in Indonesia with the Poorest Population (Thousands)
Source: BPS, data processed (2018)

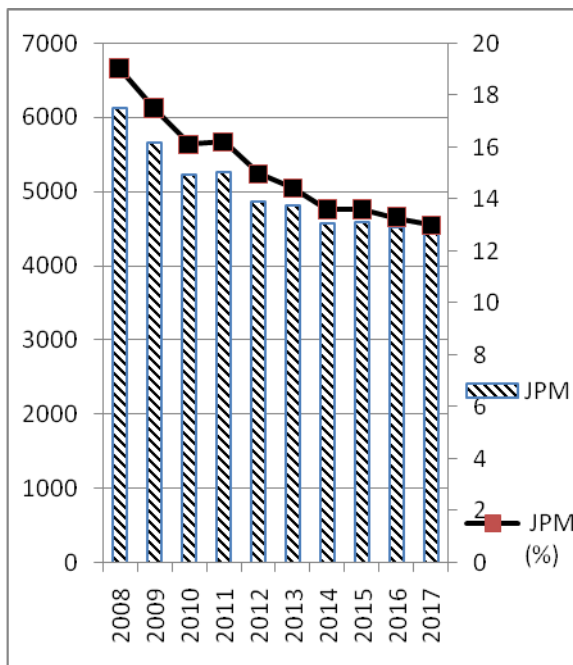


Figure 3. Poor Population in Central Java in 2008-2017
Source: Central Java BPS, data processed (2018)

Table 1 Average lowest number of poor populations in regencies/cities in Central Java during 2008-2017 (thousand people)

NO	Regency/City	JPM
1	Salatiga City	12,1
2	Magelang City	12,11
3	Tegal City	22,9
4	Pekalongan City	25,07

5	Surakarta City	63,75
6	Kudus Regency	72,32
7	Semarang City	83,3
8	Sukoharjo Regency	85,93
9	Semarang Regency	88,65
10	Temanggung Regency	93,65
11	Batang Regency	93,85

Source: Central Java BPS, data processed (2018)

Indonesia has 34 provinces with a heterogeneous number of poor people, but if we look at Figure 2 above from the top five provinces in Indonesia, Java still dominates the largest number of poor people in Indonesia. Central Java Province is the second province which has the highest number of poor people in Indonesia after East Java Province with a population of poor in 2017 amounting to 4,405.27 thousand people. Even so, the population of Central Java Province from 2008 to 2017 tends to experience a declining trend.

However, if we look at 29 districts and 6 cities in Central Java that have characteristics that are diverse such as area, infrastructure, social, culture, economy, education and health, the problem of poverty in Central Java has not been resolved optimally, we can see this in table 1 above shows that only 6 cities and 5 regencies have an average number of poor people below 100 thousand while 24 regencies are still in

the high number of poor people. This reflects that the number of poor people in Central Java tends to be more in districts than in cities.

Poverty is one of the standards of assessment in the success of regional development, poverty can also cause many social problems. Therefore to alleviate poverty which is the first point of SDG's namely no poverty, this makes the country make a quick move to overcome the problem of poverty, including Central Java Province.

The ability of a region in managing natural resources and the factors of production possessed can be seen from the GDP value. So that each region has a different GRDP value according to its capabilities. According to Kurniawati, Gunawan, and RatnaIndrasari (2017) showed that GDP per capita had a significant negative effect on poverty in all provinces in Indonesia during the 2006-2014.

According to Sukirno (2006) for the drivers of economic activity, there is a need for people who are important elements as human resource inputs needed to realize economic activities. There are two understandings of the influence of the population on development, which is pessimistic,

assuming rapid population growth has an impact on the exploitation of natural resources, the environment, savings, and can lead to social problems such as poverty, inequality, unemployment, crime, and others. While optimism understands that the population is an important capital that can advance economic growth, the development of innovation and information technology and institutions that are able to improve social conditions (Subri, 2003: 4).

There are three basic development indicators, namely health, education and real income per capita (purchasing power). Health is not only the main goal itself but also has a significant impact on income. A healthy population is a prerequisite for successful development (Todaro, Michael P., and Smith, Stephen C. 2011: 494). Life expectancy (AHH) is the average predicted age of a person measured from birth. This instrument is commonly used to assess the results of government performance in the health sector. Thus improvements in the health of the population are indirectly able to increase performance productivity which has an impact on improving welfare which will later affect the reduction in the number of poor people.

According to Dores E, Rosa Yenni and Jolianis (2014) that literacy rates and life expectancy have a negative influence on the number of poor people. Someone who has education, knowledge, and expertise can drive productivity. High productivity levels will have an impact on improving welfare which then affects the reduction of poverty (Todaro, Michael P., and Smith, Stephen C, 2011)

According to Wirawan, I Made and Arka, S. (2015) concluded that simultaneously education variables, GDP per capita, and unemployment rate significantly influence the number of poor people while partially the education variable, GDP per capita has a significant negative effect on the number of poor people, and the unemployment rate variable has a significant positive effect on the number of poor people.

Decent living needs are also able to reflect prosperity as a result of economic growth. Development achievements for a decent living can be assessed from the parity of people's purchasing power towards primary needs which is assessed from the average consumption per capita. If the home expenditure is higher than the inflation rate in the same period, it can be said that there is an increase in welfare.

In his research, Finkaya, Arya, and Dewi, Heny N (2016) showed that per capita expenditure had a significant negative effect on the number of poor people. Increasing per capita expenditure could have an impact on decreasing the number of poor people in an area because higher per capita expenditure showed an increase in overall welfare.

Based on these thoughts, this study aims to find out and analyze the "Determinant Analysis of the Number of Poor Populations in Central Java in 2008-2017". The purpose of this study was to find out and analyze the effect of population growth rates, per capita GRDP, life expectancy (AHH), average length of school (RLS) and per capita expenditure (PPP) on the number of poor people in districts/cities in Central Java from 2008-2017.

RESEARCH METHODOLOGY

Types and Data Sources

This research was conducted in all districts/cities in Central Java. The choice of location is due to the still large number of poor people in the city district and uneven economic growth. This research is quantitative research with secondary data obtained from the

Central Statistics Agency and supported by data from libraries and previous research. The research uses panel data, which is a combination of time series data from 2008-2017 and cross-section data consisting of 29 districts and 6 cities in Central Java by using the Stata 14.0 software. With the use of this data, it is expected to be able to photograph poverty problems in the district/city in more detail.

Operational definition

1. The number of poor people (Y) in this study is the number of poor people per district/city who have an average per capita expenditure per month under the food and non-food poverty line according to BPS criteria. The variable unit is a thousand lives
2. The population growth rate (X1) is a change in population per year which is expressed as a percentage.
3. Per capita,GRDP (X2) is the number of regency/citiesGRDP divided by the number of residents in a given region per period. The variable unit is thousands of rupiah
4. Life expectancy (X1) is the average estimated age of a person in a district/city which is a composite of HDI. The variable unit is years

5. The average length of school (X4) is the average number of years used by residents in undergoing formal education in the district/city. The variable unit is years.
6. Per capita expenditure (X5) is the average cost incurred for per capita consumption for a year based on constant prices by paying attention to purchasing power parity in the district/city. The variable unit is rupiah

Data analysis method

The analytical method used is the panel data regression model. To predict the regression coefficients in this study transformation into logarithms (log) so that the equation is obtained as follows:

$$\log Y = \log \beta_0 + \beta_1 X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \mu \dots (1) \text{ Where:}$$

Y = Number of poor people

β_0 = Constants

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Parameters that will be estimated

X1 = Population growth rate

X2 = GRDP per capita

X3 = Life expectancy

X4 = Average length of the school

X5 = Per capita expenditure

μ = Error term

Data Panel Regression

1) Fixed Effect (FE)

The FE model has a fixed intercept both for individuals and time, where each unit cross section is fixed in time series equations of the model in Gujarati, D.N. and Porter, D.C. (2012) are as follows:

$$Y_{it} = \alpha_1 + \alpha_n D_n + \dots + \beta_3 X_{3it} + \dots + \beta_n X_{nit} + e_{it}$$

FE models have many shortcomings, namely the degree of freedom due to the limited number of samples and multicollinearity as a result of the number of dummy variables whose estimation ability is still limited.

2) Random Effect.

This model is almost the same as the model fixed effects, except that the

difference in estimates is the error term Gujarati, D.N. and Porter, D.C. (2012) are as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \dots + \beta_n X_{nit} + e_{it}$$

Where e_{it} is an error term which is a combination of time series and cross section which is useful to see the model whether the right one is used Fixed Effects or Random Effects. Therefore, it is necessary to do a Hausman Test provided that the probability generated is more than α 5 percent then the FE model is used, but if it exceeds α 5 percent, then choose the random effect.

RESULTS AND DISCUSSION

Estimated Results

Table 2. Results of Panel Data Regression

Variable	Coefficient		
	OLS	Fixed Effect	Random Effect
lpp_x1	-.0061495	-.00061495	-.0061495
logpdrb_x2	.00589865	.00589865	.00589065
logahh_x3	-1.9163993	-1.916393	-1.916393
logrls_x4	-.18363682	-1.8363682	-.18363682
logppp_x5	-1.0612159	-1.0612159	-1.0612159
_cons	9.998412	9.998412	9.998312

Source: Stata 14 output processed (2018)

Determination of Data Panel Model

Analysis Techniques

a. Chow Test

In the chow test panel data is used to select the model that should be used between fixed effects or pooled least square.

H0: Pooled Least square (PLS)

H1: Fixed Effect

To determine the choice between PLS and FE, it can be seen by the FE. If P value (Prob> f) <alpha 0.05 then H1 is accepted and vice versa.

Table 3. Chow Test

Fix Effects Test	Prob > F = 0.0000
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Source: Output of Stata 14, processed (2018)

Based on these results (Prob> F) equal to 0.0000 or less than α 0.05 so H1 is accepted or chooses the fixed effect model.

b. Correlated Random Effect-Hausmann Test

This test aims to determine whether the random effect model is better used than fixed effects.

H0: Random Effect Model

H1: Fixed Effect Model

If the result of the probability of P value (Prob>chi2) <alpha 0.05 then HI

is accepted. The result of the estimate is as follows:

Table 4. Hausman Test

Hausman Test	Prob.chi2 0.8017
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Source: Stata Output, processed (2018)

Based on these results (Prob>chi2)> alpha 0.05 then H0 is accepted or the best choice is Random Effect.

Classic assumption test

a. Multikoloniarity Test

To detect the presence or absence of multicollarity in the panel data regression model can see the correlation matrix of the independent variable, if there is a correlation coefficient of more than 0.80, there is Gujarati D.Nmulticollinearity. and Porter, D.C (2012). The results of multicollinearity tests can be seen in table 5 below:

Table 5 Multicollinearity Test Results

	logjmp_y	lpp_x1	logpdrbcp_x2	logahh_x3	logrls_x4	logppp_x5
logjpm_y	1.0000					
lpp_x1	-0.1699	1.0000				
logpdrbcp_x2	-0.5418	-0.0855	1.0000			
logahh_x3	0.4142	0.1403	0.4827	1.0000		
logrls_x4	0.6857	0.0922	0.6958	0.4327	1.0000	
logppp_x5	0.5949	0.0278	0.7158	0.5005	0.7632	1.0000

Source: Output of Stata 14, processed (2018)

From the table above, it can be seen that there is no correlation coefficient between variables above 0.80 so that

this study is free from multicollinearity problems.

b. Heteroscedasticity Test

This test is used to test whether in the regression model variance inequalities from residuals occur one observation to another observation. How to predict the presence or absence of heteroscedasticity in a model can be used using the Breusch-pagan test analysis. This can be seen in the output if the probability of significance above α 5 percent is not exposed to heteroscedasticity and vice versa if under α 5 percent it is exposed to heteroscedasticity.

Table 6. Heteroscedasticity Test Results

chi2 (1)	103,93
Prob >chi2	0.000

Source: Output of Stata 14, processed (2018)

From the results of heteroscedasticity tests with Breusch-pagan show $Prob > chi2 < \alpha$ (0.05) or there is a problem of heteroscedasticity.

The method used in this study to overcome the existence of heteroscedasticity is by the method of SUR (Seeming Unrelated Regression). In 1962 the SUR model was introduced by Zellner as a model from multifarious regression and part of linear regression. The SUR model consists of several

unrelated systems of equations. This means that each variable (dependent or independent) is in one system. In the SUR model, errors from different systems are correlated/related.

Therefore, this study chose to use the SUR method to overcome this problem. The results of the SUR method can be seen in the table as follows:

Table 7 SUR Test Method Results

Variabel	T	Probabilitas
lpp_x1	-.031489	0.008
logpdrb_x2	-.0667159	0.459
logahh_x3	-2.22248	0.031
loggrls_x4	-2.514648	0.000
logpp_x5	-.5895034	0.059
_cons	15.52983	0.000
Obs	350	
R-square	0.5040	
Prob(F-statistic)	0.000	

Source: Output of Stata 14, processed (2018)

Statistical Test Results

- a. Determination Coefficient (R Square)

Determination Coefficient Test (Rsquare) aims to find out how far independent variables can explain well the dependent variable. Based on the regression results obtained adjusted Rsquare coefficients as follows:

Table 8. Determination Test Results (R2)

Obs	R-Square	Chi - square	P -Value
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350	0.504	355,65	0.000
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Source: Stata data, processed (2018)

The determination coefficient obtained by R-squared is 0.504. This shows that the contribution of all independent variables in explaining the dependent variable in this model is 50.4 percent and the remaining 49.6 percent is explained by other variables outside the model.

b. Simultaneous Test (F)

Based on the results of the analysis using the software stratum 14.00 obtained the probability of F of 0.000000. Means at a significance level of 5 percent, probability F is smaller than the critical value, the F test is significant. Therefore, it can be concluded that the variables are *lpp.PDRBkp*, *ahh*, *rls* and *PPP* simultaneous significant effect on the number of poor population of districts/cities in Central Java.

c. Partial Test (t)

The t-test results are used to test the regression coefficients individually between the independent variables on the dependent variable with a significant level of 0.050 ($\alpha = 5\%$).

Variable rate of population growth

The results show that the population growth rate has a significant

negative effect on the number of poor people with a coefficient of -0.03148 and a probability value of 0.008, in the condition of *ceterisparibus* every increase in population growth rate of 1 percent will reduce the number of poor people by 0.03318 percent.

In accordance with optimism, it is assumed that the population is an important capital that can advance economic growth, the development of innovation and technology and institutions that are able to improve social conditions. The increased population growth rate is an uncertain negative impact, but the population growth rate followed by high *HDI*, technological progress can increase work productivity that can increase income and have an impact on reducing the number of poor people (Subri, 2003: 4)

This is also in line with Michael Kremer's theory in his book Mankiw (2006: 207) which argues that the rate of population growth is a door to improving economic welfare. With an increase in population, scientists, creators, and mechanics are born who can contribute to innovation and technological progress. The increase in the working age population will increase GDP per capita and have an impact on reducing the

amount of poverty (Cruz and Ahmed, 2018)

Variable per capita GRDP

The results show that the GDP per capita variable has a not significant negative effect on the number of poor people with a coefficient of -0.09005 and a probability value of 0.459. This shows that the high per capita *GRDP* does not have a significant effect on the number of poor people in Central Java.

Central Java which has 29 districts and 6 cities with uneven *GRDP* per capita. The difference in income that is high in average for ten years from 2008-2017 is the highest per capita *GRDP* in Kudus Regency with an average value of 72,038 million rupiahs and the lowest is *Pemalang* Regency with 10,028 million rupiahs (BPS, 2018). this large enough resulted in the imbalance of income distribution between districts/cities which made *GRDP* per capita high but did not reduce the number of poor people.

This happens because basically, income per capita is the average income of the population. It is possible that the increase in income per capita is only experienced by high-income residents. When the high-income group income increases, then the cumulative average

income will increase, so this value becomes biased (Parhah 2012).

This is in accordance with his theory, Sukirno (2000), which shows that economic development is not only measured by *GRDP* but also considers the extent to which the distribution of income spreads over the community and who enjoys the results.

Variable life expectancy (AHH)

The test results show that the AHH variable has a significant negative effect on the number of poor people with a coefficient of -2.22248 and a probability of 0.031, specifically in *caterisparibus* conditions, an increase of one percent ahh will reduce the number of poor people by 2.22248 percent. This study shows that the higher the life expectancy the lower the number of poor people. Likewise, conversely, the lower life expectancy will increase the number of poor people in the regencies/cities in Central Java.

The results of this study are in accordance with previous studies conducted by Dores, Rosa, and Jolianis (2014) that life expectancy has a significant negative effect on the number of poor people, indicating that there is an increase in the health of the poor population. residents, so that they are

able to fulfill their basic needs and have an impact on reducing the number of poor people (Suryandari, 2018).

Average school length variable (*RLS*)

The results of this study indicate that the average length of school has a significant negative effect on the number of poor people with a coefficient of - 2.51464 and a probability of 0.000. This shows that an increase in *RLS* of one percent will reduce the number of poor people by 2.51464 percent.

The same study was conducted by Mirze, Kaplan, and Bayar (2013) that there was a significant relationship between poverty and graduation rates. Higher education graduation rates will reduce poverty in the United States. This research is in line with the research of Merdekawati and Budiantara (2013) in the spline regression model showing that the percentage of illiteracy and less than junior high school education are the factors that influence the percentage of poverty in districts/cities in Central Java in 2011. School enrollment rates have a significant negative relationship to the number of poor people in districts/cities in East Java (Qatrunnada 2016)

These results are also supported by Wirawan, Toni and Arka (2015)

research in panel data regression tests in districts/cities in Bali which show that the average length of schooling partially or simultaneously has a significant negative effect on the number of poor people. The higher the level of education pursued, it is possible that poverty will decrease.

Per capita expenditure

The results of the analysis show that the variable expenditure per capita shows a negative sign that does not have a significant effect on the number of poor people with a coefficient of - 0.58950 and a probability of 0.059. Purchasing power parity reflects the level of public expenditure in an area. Per capita expenditure is one of the benchmarks of the human development index related to real per capita consumption.

According to the theory of Harrod Domar, the increase in production and income of the people is determined by the increase in public expenditure. So that national income will increase if there is an increase in public expenditure, which will then encourage increased economic growth.

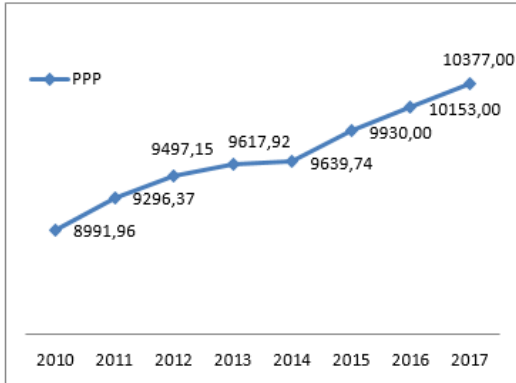


Figure 4. Central Java's per capita expenditure development
Source: BPS Central Java, processed (2018)

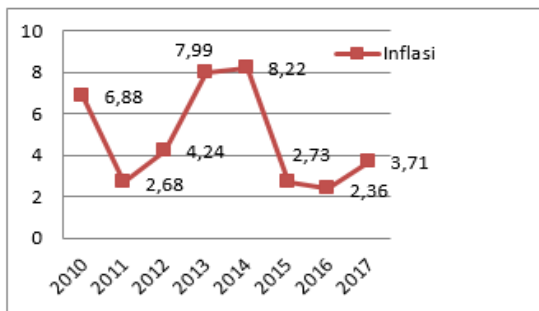


Figure 5. Development of Central Java Inflation
Source: BPS Central Java, processed (2018)

If we look at figure 4 above, it shows that per capita expenditure in Central Java in 2010-2017 shows a not-so-big increase. The average increase in Central Java's per capita expenditure is only 2 percent. Whereas when viewed from the inflation value in figure 5 in Central Java, the average inflation is 4.8 percent. The success that is successful if there is an increase in the nominal housing expenditure is higher than the inflation rate in the same period. Whereas from the above data shows that

the nominal increase per capita is lower than the inflation average so that it can be said that if measured from per capita expenditure has not shown a significant increase in welfare so that in this study per capita expenditure has no significant effect on the number of poor people.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the above research it can be concluded that the population growth rate, life expectancy and average length of school have a significant effect on poverty alleviation in districts/cities in Central Java. That is, various government policies and programs in poverty alleviation through education, health has shown results well.

While in terms of per capita *GRDP* and per capita expenditure have not shown significant results. There should be various government policies and programs such as the ease of capital-intensive investment licensing, infrastructure facilitation so that investors are interested in investing in both cities and regions. So that the increase in per capita income and labor absorption which is balanced with equitable development will be able to reduce the number of poor people.

In addition, it is expected that the central and regional governments will increase the percentage of APBN and APBD to improve human development especially in the fields of health and education because this research shows that education and health variables have a large elasticity compared to other variables. a minimum 12-year compulsory education scholarship, encouraging and facilitating vocational education in order to be able to supply skills so as to produce direct labor and public health guarantees. There needs to be awareness and education that maintaining a healthy lifestyle and high education will build a better and sustainable economy.

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