Analysis of the Effect of Population Growth, Human Development Index and Unemployment Rate on Poverty in West Java Province 2017-2020

Anggi Irma Lismana[a]*, Hadi Sumarsono[b]
[a,b] Economics and Development Studies, Faculty of Economics, State University of Malang, Indonesia
* Corresponding author: anggi.irma.1804326@students.um.ac.id

Article Info	Abstrak
	Poverty is a significant problem faced by several countries. Several factors causing poverty selected population growth, HDI, and unemployment rate, which are studied to influence poverty in the province of West Java. This study aims to see whether population growth, human development index, and unemployment rate contribute to poverty in West Java province in 2017-2020, using secondary data from the Central Statistics Agency (BPS) website. The assisted panel data regression method was used in this study, administered by the STATA application to process the data. The data processing results in this study indicate that population growth and the human development index negatively affect poverty. In contrast, unemployment has a positive-not significant effect on poverty. Simultaneous test results show that population growth, human development index, and unemployment in poverty in West Java Province from 2017 to 2020

INTRODUCTION

One of the most severe problems faced by various countries, which is usually more dominant in developing countries, including Indonesia, is poverty. The National MDGs target is to reduce poverty to 7.55% by 2015. Still, based on the Central Agency on Statistics (BPS) publication, the percentage of poverty in 2015 nationally was only reduced to 11.13%. Compared to 33 other provinces, West Java Province has a high rate of poverty that is still very worrying. Based on BPS (2019), the number of poor people from 2019 to 2020 increased by 7.88% of the total population, or by 3.92 million people. Where the number is quite large, and the government needs to make efforts to reduce the poverty rate. The following is data on the poverty level of West Java province from 2017 to 2020:

Table 1. Poor People of West Java Province 2017-2020

Year	2017	2018	2019	2020
Poor People	4.168.400	3.615.800	3.399.200	3.920.200

Source: (Statistik, 2017-2020)

Based on the table above, the number of poor people in West Java Province exceeds 3 million yearly. Poverty in the province of West Java is very worrying, so the government's efforts to overcome this poverty problem must be comprehensive and coordinated. Poverty arises due to differences in the abilities of economic actors in the community, resulting in them not being able to participate in the development process or enjoy the benefits of development.

One of the government's efforts in alleviating poverty is development; it is hoped to improve people's living standards and community welfare and reduce

income disparities, unemployment, and poverty rates. So it can be said that poverty alleviation is a fundamental goal in development. Indicators of development success can be seen from the economic structure, the level of inequality between the population and the region, and the economic growth of an area.

Population growth is significant in a region's economic development because achieving goals such as increasing community welfare and reducing poverty will be hampered if population growth cannot be controlled. According to Malthus' theory (Skuosen, 2009: 85), unlimited people's needs are not proportional to the availability of natural resources because natural resources cannot meet increasing human needs. It can be said that intense competition to fulfill people's desires brings them closer to poverty. The following is population growth data in West Java Province 2017-2020:

Table 2. Population Growth of West Java Province 2017-2020

Year	2017	2018	2019	2020
Population Growth	48.037.827	48.683.861	49.316.712	49.935.858

Source: (Statistik, 2017-2020)

According to table 1.2, West Java Province experienced an increase in population growth from 2017 to 2020. Some economists believe that high population growth can hinder a development process. Mulyadi (2003:16) says that the inhibiting factor for the development process in a country is due to the increasing rate of population growth; This shows that population growth does not have a solid ability to produce and absorb its production, so this will affect the level of poverty.

In Deliarnov, Malthus found that to meet human needs. The human population's development exceeds the agricultural product production because food production continues to increase in arithmetic (arithmetic), while humans develop geometrically. The people will have difficulty meeting basic needs because the growth of the human population is significantly faster than the growth in output of agricultural products, which will increase poverty rates.

The Human Development Index (HDI) is the next factor that will be investigated and assessed whether it affects poverty in the province of West Java. The HDI value can represent how the population obtains development outcomes such as income, health, education, and others. The HDI consists of three essential components: a long and healthy life, knowledge, and a good quality (standard) of life (BPS, 2018). The following table is HDI data in West Java from 2017 to 2020:

Table 3. HDI level of West Java Province 2017-2020

Year	2017	2018	2019	2020
HDI	70,28	70,97	71,64	71,64

Source: (Statistik, 2017-2020)

The percentage of HDI in West Java Province in 2017-2020 continues to increase, where the HDI value in an area will affect the work productivity of the population in that area. If the HDI in an area decreases, it will result in the

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low work productivity of the people in that area. So low work productivity will result in a decrease in per capita income. The low income of the population will result in the number of poor people increasing so that they cannot meet their basic needs.

In addition to population growth and HDI, the unemployment variable will also be investigated and assessed whether it affects the poverty level in the province of West Java. According to Sukirno (2006:7), unemployment can reduce people's income. In the end, it will reduce the level of welfare; decreasing interest levels will cause other problems, namely poverty. So that income is said to reach the highest level if the use of labor is met.

The magnitude of the unemployment rate can be considered crucial in determining successful economic development; it can be said that unemployment is an indicator to show how well a country is performing as a result of economic growth. The unemployment variable data used in this study is the open unemployment rate data, which reflects the proportion of the unemployed working-age population.

Table 4. Unemployment Rate of West Java Province 2017-2020

Year	2017	2018	2019	2020
Unemployment Rate (%)	7,90	7,93	7,85	9,98

Source: (Statistik, 2017-2020)

As shown in table 4, the percentage of unemployment in West Java Province from 2017 to 2019 fluctuated; in 2020, it increased by 2.13%, from 7.85% to 9.98%. The problem of unemployment is one of the most critical issues to consider. The increasing unemployment rate is a poverty challenge from year to year. Unemployment is defined as a condition of a person who does not have a job or is actively looking for work. Income level is one aspect that determines the success of a society. If full employment opportunities can be achieved, people's income will reach its maximum level.

Various studies that discuss the problem of poverty have been carried out using the variables of population growth, human development index, and unemployment. Based on research by Whisnu Adhi Saputra (2011), population growth positively affects poverty, while HDI and unemployment hurt poverty. In a study by M. Alhudor (2017), the human development index and unemployment positively affect poverty. Researchers understand that the effect of population growth on poverty in West Java province has never been studied, although it has been carried out in other areas (Eka Susiatun, 2018; Trisnu and Sudiana, 2019; Kiam and Awaluddin, 2021). Eka Susiatun (2018) found that population growth had a positive and significant effect on poverty, Trisnu and Sudiana (2019) found that population growth had a positive and significant impact on poverty, while Kiam and Awaluddin (2021) found that population growth had no significant effect on poverty.

From previous research, the population growth variable has a positive effect on poverty, which means that the higher population growth in an area will increase the regional poverty rate. For that, I use West Java Province as the object of my research, where this province has the highest population in

Indonesia. The difference between this study and previous research is that the population growth indicator used is the percentage growth of the population expected to analyze its effect on the poverty level in West Java.

This study aims to determine the effect of population growth, human development index, and unemployment on poverty in West Java Province. The HDI variable uses three dimensions: longevity, knowledge, and a decent standard of living. At the same time, the unemployment variable uses open unemployment data. With this research, the government can decide on policies and plans and evaluates the equal distribution of education programs in Jawa Barat Province.

RESEARCH METHODS

Secondary data in the form of time series data was used in this study from 2017 to 2020. This data was obtained from browsing various documents in the publications of the Central Statistics Agency of West Java Province.

The following data are used: a) West Java Province poverty data from 2017 to 2020; b) Population growth data for West Java Province from 2017 to 2020; c) HDI growth data in West Java Province from 2017 to 2020; d) Data on the open unemployment rate in West Java Province from 2017 to 2020.

The data analysis technique used is panel data regression analysis. Panel data regression combines time series and cross-section data with estimation model methods, namely the Common Effect Model, Random Effect Model, and Fixed Effect Model. There are several tests for choosing the suitable model: the Chow Test, Hausman Test, and Lagrange Test. Lagrange test if the model selected in the Chow test is Common Effect and the chosen model in the Hausman test is Random Effect. If the selected Chow and Hausman tests are Common Effect models, then there is no need to perform the Lagrange Test. After knowing the suitable model, the next stage is hypothesis testing, namely by using: (1) Determination Coefficient Test ($R2$); (2) F test; and (3) T-test.

Panel data analysis helps evaluate the effect of Population Growth (PP), Human Development Index (HDI), and Unemployment Rate (PG) variables on poverty variables, namely:

$$MS = f (PP, HDI, PG) \quad\text{..} \quad (1)$$
$$MS = \beta 0 + \beta 1 X_1 + \beta 2 X_2 + \beta 3 X_3 + e \text{ Eit} \text{...}(2)$$

Where, Ms = poverty (%); PP (X_1) = population growth (%); HDI (X_2) = human development index (%); PG (X_3) = unemployment (%); t = time series; i = cross section; $\beta 0$ = constant; $\beta 1, \beta 2, \beta 3$ = coefficient; e = error term.

This study also tested the Classical Assumptions: Data Normality Test; Multicollinearity Test; Heteroscedasticity Test; and Autocorrelation Test. Classical Assumption Testing is carried out before analyzing further the data that has been collected

RESULTS AND DISCUSSION

According to data published by the Central Statistics Agency (BPS), the poverty rate growth in West Java is up to 7.88% of the total population, or around 3.92 million people in 2020. Compared to other provinces in Indonesia, West Java province is one of the most vulnerable. Highest. Judging from its area, Bogor is one of the enormous pockets of poverty in Tanah Pasundan. The

poor population in Bogor reaches 7.69% of the total population of about 465.67 thousand people. Bandung ranks second because the number of poor people in Bandung is 263.6 thousand people, or 6.91%of the total population. The poor in Garut reaches 262.78 thousand people or 9.98% of the total population.

Furthermore, 247.9 thousand Cirebon residents are below the poverty line, or 11.2% of the entire Cirebon population. The poor population in Cianjur is 234.5 thousand people, or 10.4% of the total population of Cianjur. While Banjar and Sukabumi are the areas with the least number of underprivileged people in West Java province, the two cities have 11.16 thousand (6.09%) and 25.42 thousand poor people (7.7 %), respectively.

This section may be divided into subheadings. It should provide a concise and precise description of the experimental results, their interpretation, and the practical conclusions that can be drawn.

Data Analysis Results

Chow Test

The following are the results of the Probability-Test Ratio (Chow's Test) in this study:

Table 5. Regression results with the common effect equation

Variable	Coef.	Std. Err.	T	P>|t|	[95% Conf. Interval]	
PP	-6.5507	1.3807	-4.75	0.000	-9.2907	-3.8207
HDI	-.45632	.0361737	-12.61	0.000	-.528058	-.384591
PG	.239377	.0832287	2.88	0.005	.0743313	.4044227
_cons	39.89251	2.549126	15.65	0.000	34.83749	4.94752

$F_{(26, 51)} = 1.22$; Prob > F = 0.2631. Based on the output results above, the probability value of 0.2631 indicates that the F-test gives significant results because the probability value exceeds the value of (0.05), so H0: CEM (Common Effect Model) is accepted; while H1: FE (Fixed Effect) is rejected. Thus, it can be concluded that the Common Effect Modek is an appropriate analytical model for research.

Hypothesis Test

a) Coefficient of Determination Test (R2)

   According to the table above in the Common Effect Model analysis model, R2 is worth 0.7473 or 74.73%, meaning that 74.73% of the dependent variable (poverty level) can be explained by the independent variables being studied (Population Growth, Human Development Index, and Unemployment Rate). Meanwhile, 25.27% is explained by other variables/factors outside the model.

b) F -test

   Based on the table of Chow test results above, the regression results obtained an F-statistic value of 9.16 with a probability value of 0.000 < (0.05). Because the probability is less than (0.05), there is a simultaneous/simultaneous effect between the independent variables

(Population Growth, HDI, and Unemployment) and the dependent variable (Poverty Level) in West Java Province in 2017-2020.

c) t-test

This test is used to see whether the independent variables (Population Growth, HDI, and Unemployment) have a significant effect on the dependent variable (Poverty Level) at the 95% confidence level ($\alpha = 0.05$) by looking at the probability value of each variable. If the p-value / t-statistic < (0.05), then the independent variable significantly affects the studied dependent variable. The following table shows the results of the t-statistics test using STATA software:

Tabel 6. T-statistical test results

Variable	P > 1 t 1	Keterangan
Population Growth (X1)	0.000	significant
HDI (X2)	0.000	significant
Unemployment (X3)	0.005	Not significant

As shown in the table above, the results of the t-test show the following:

a. *The Effect of Population Growth on poverty*
   At the 95% confidence level ($\alpha = 0.05$), Population Growth has a significant effect (Prob value = 0.001 <0.05) on the poverty level of West Java Province.

b. *The Effect of HDI on poverty*
   Based on the table, the HDI variable significantly affects poverty in West Java Province at the 95% confidence level ($\alpha = 0.05$) with a probability value of 0.000 <0.05.

c. *The Effect of Unemployment on Poverty*
   The test results for the Unemployment Rate variable show a probability value of 0.087 > 0.05 at the 95% confidence level ($\alpha = 0.05$); This indicates that the Unemployment Rate has no significant effect on poverty.

DISCUSSION

Population Growth

The study results show that the population growth variable has a coefficient of -75,074 which means that population growth affects the poverty level in West Java Province. An increase in population growth of 1% will reduce poverty by 75.074%. Population growth can be used to consider the poverty level of each city in West Java Province.

The Common Effect model is the analytical model that was chosen to be used in this study. The common effect model test results show that population growth negatively and significantly affects poverty in West Java Province. The low level of poverty is caused by increasing population growth rates; This is due to high population growth, where the population's birth rate remains high while the death rate remains high but relatively much lower.

The results of this study are from previous research conducted by Eka Susiatun (2018) and Trisnu & Sudiana (2019), which stated that population

growth significantly affected poverty. According to researchers, increasing population growth rates will reduce poverty because residents in West Java Province have more opportunities to improve their standard of living and alleviate poverty. After all, the working-age population dominates them. Another factor is that increasing population growth every year will be used as an impetus for increasing development so that economic activities will be stimulated, community welfare will increase, and poverty levels will decrease. If population growth rises, if it is not matched by success in other aspects of development, income and demand will not increase; as a result, population growth will cut wages and improve production costs.

Human Development Index

Following the study results, the HDI variable has a coefficient of -13,423 which means that an increase in HDI of 1% will reduce poverty by 13.423%. The HDI variable negatively and significantly affects West Java Province's poverty level. It can be concluded that an increase in the HDI value indeed results in a decrease in the poverty level. Thus, the poverty rate will decrease if efforts are made to increase the HDI value, for example conducting socialization of skills/expertise training for the workforce or improving the quality of education because it will open up great opportunities in getting jobs and equal income.

The improvement certainly influences the decline in the poverty rate in the quality of human resources. This research is in line with Zuhdiyaty, Noor (2017), Pratama, Yoghi Citra. (2014); and the research of Putri and Nyi Nyoman. (2013), which suggests that the human development index harms poverty.

Unemployment

Based on the research results, the unemployment variable has a positive but insignificant effect on the poverty level, with a coefficient of 0.1196795, meaning that every increase of 1 thousand unemployed people does not affect the poverty level of 0.196795 thousand people.; This means that an increase in the unemployment rate will undoubtedly result in a decrease in people's income so that the level of community welfare decreases. As long as unemployed people can still meet their daily needs, they are not always classified as poor because not all unemployed people have low incomes. Poverty is not always related to employment problems (Godfrey, 1993).

This statement is also supported by Arsyad (1997), which states that it is wrong to think that poor people are people who do not work because sometimes there are people who work voluntarily to find a better job according to their education level. They turn down jobs considered inferior because they have other skills that will help them overcome financial problems.

It can be concluded that the unemployment rate has no significant effect on the poverty level in West Java Province. This study corroborates the findings of Zuhdiyaty, Noor (2017); Wahyudi and Rejekingsih (2013); and research by Puspita, Dita Wahyuni. (2015), which states that unemployment has a positive effect on poverty levels.

CONCLUSION

Based on the results and discussion regarding the influence of the variables Population Growth, HDI, and Unemployment Rate on the poverty level in West Java Province from 2017 to 2020, the following conclusions can be drawn:

The population growth variable has a negative and significant effect on poverty in West Java, so increasing population growth affects decreasing poverty levels. The HDI variable has a negative and significant impact on poverty in the region of West Java, so an increase in the human development index affects decreasing the poverty level. And lastly, the Unemployment variable has a positive and insignificant impact on poverty in the province of West Java, so that when the unemployment rate rises, the poverty rate also increases/increases along with the increase in the unemployment rate.

The suggestions that will be given include the following: a) The government is expected to pay attention to the population growth rate in villages and cities, b) The West Java Provincial Government is expected to increase the mobilization of the informal sector, and c) The government is expected to expand job opportunities and implement community empowerment policies so that people can start their businesses/open their jobs.

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