The Influence of HDI, Per Capita Income, Population Growth on Poverty on Java Island in 2017-2022 with Zakat as a Moderating Variable

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Abstract

This research aims to determine the effect of the Human Development Index, Per Capita Income, and Population Growth on Poverty on Java Island in 2017-2022 with Zakat as a Moderating Variable. This type of research is quantitative research with a population, namely the Province of Java Island. Meanwhile, the sample for this research was determined using the Saturated Sampling method with criteria determined by the researcher so that a sample of 36 samples from 6 provinces were obtained during the observation period (2017-2022). The type of data used is panel data. The analytical methods used include descriptive tests, statistical tests, stationary tests, multiple regression tests, T-tests, F tests, R² tests, classical assumption tests, and MRA tests. The Moderated Regression Analysis (MRA) test uses Eviews 10 data processing software. The results of the research partially show that the Human Development Index variable has a negative and significant effect on poverty and Per Capita Income has a negative and significant effect on poverty. Based on the Moderated Regression Analysis (MRA) test, shows that the interaction of Zakat is unable to moderate the influence of the Human Development Index, Per Capita Income, and Population Growth.

Keywords: *HDI, Per Capita Income, Population Growth, Zakat and Poverty*

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh Indeks Pembangunan Manusia, Pendapatan Per Kapita, dan Pertumbuhan Penduduk terhadap Kemiskinan di Pulau Jawa Tahun 2017-2022 dengan Zakat sebagai Variabel Moderating. Jenis penelitian ini adalah penelitian kuantitatif dengan populasi yaitu Provinsi Pulau Jawa. Sedangkan sampel penelitian ini ditentukan menggunakan metode Jenuh Sampling dengan kriteria yang ditentukan oleh peneliti sehingga diperoleh sampel sebanyak 36 sampel dari 6 Provinsi selama periode pengamatan (2017-2022). Jenis data yang digunakan adalah data panel. Metode analisis yang digunakan meliputi uji deskriptif, uji statistik, uji stasioneritas, uji regresi berganda, uji T, uji F, uji R², uji asumsi klasik, dan uji MRA. Uji Moderated Regression Analysis (MRA) menggunakan software olah data Eviews 10. Hasil penelitian secara parsial menunjukkan variabel Indeks Pembangunan Manusia berpengaruh negatif dan signifikan terhadap kemiskinan dan Pendapatan Per Kapita berpengaruh negatif dan signifikan terhadap kemiskinan. Berdasarkan uji Moderated Regression Analysis (MRA), menunjukkan bahwa interaksi Zakat tidak mampu memoderasi pengaruh Indeks Pembangunan Manusia, Pendapatan Per Kapita, dan Pertumbuhan Penduduk.

Kata Kunci: *IPM, Pendapatan Per kapita, Pertumbuhan Penduduk, Zakat dan Kemiskinan*

INTRODUCTION

This problem of poverty is a picture of the welfare of society in a country (Arifin, 2019). According to BPS (2020), poverty can be measured using the ability to meet basic needs approach. With this approach, poverty is considered as a person's inability to fulfill basic needs, both food and non-basic needs, which are usually measured in terms of expenditure.

Poverty problems can occur due to a lack of quality human resources (HR) in a country. The availability of quality human resources is the main factor in creating sustainable economic development (Huda & Yuliati, 2022). Efforts to overcome poverty are efforts made to achieve community welfare. It can be seen that in reality poverty is a problem that cannot be considered simple, where everyone must be involved and responsible in efforts to eradicate poverty. With the hope that everyone is involved in this effort, poverty can slowly be overcome. The following is data on the number of poor people per island in Indonesia in 2021:
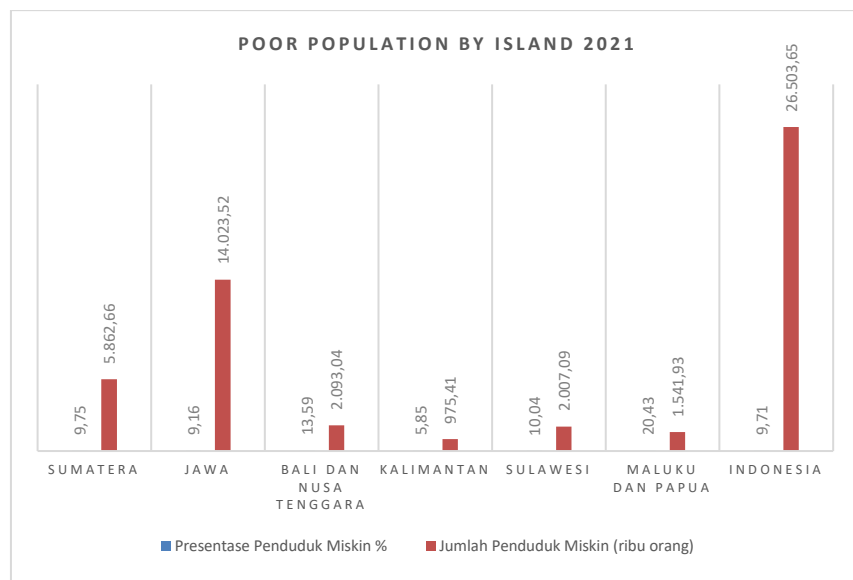

Figure 1. Poor Population According to Island in 2021

From the picture above, it tends to be seen that the poverty rate in Indonesia as of September 2021 is still very high, specifically on the island of Java, 14,023.52 thousand people (9.16%). Java Island is one of the many islands in Indonesia. Java is also the most populous island in Indonesia, where Java Island itself is the center of Indonesia's capital city.

The quality of human resources is also a factor causing poverty. This quality can be seen in the human development index. The human development index (HDI) is also used as an important indicator in measuring human welfare in a country in terms of health, education, and decent living standards (Sayifullah & Gandasari, 2016). This per capita income

is the income obtained from a certain year which is divided by the population of the country in that year (Azizah & Kusuma, 2018). Personal income also describes a person's ability to obtain resources. If a country has a low per capita income, then the poverty level tends to be high, whereas, conversely, if a country has a high per capita income, the poverty level also tends to be low.

Population growth plays an important role in influencing the number of poor people. Population is also the number of people who occupy a territory or area at a certain time (Trisnu & Sudiana, 2019). Zakat is one way of distributing wealth in an economy, especially for affluent people, giving it to those who are lucky or those who are less fortunate or poor. Zakat can also be used as a spearhead to drive a country's economy. Based on previous research that has been conducted, there are several differences.

LITERATURE REVIEW

Vicious Circle of Poverty

The Vicious Circle of Poverty was first popularized by *Ragnar Nu*rkse. This theory explains that poverty occurs due to various problems and various aspects. Not only the economic aspect, but it can also occur due to social aspects, customary aspects, political aspects, human resource aspects, and other aspects. In his book on the problem of the formation of underdeveloped countries, published in 1953, he also explained that a poor country is a country where there is a set of forces that influence each other, so this situation can cause less fortunate countries to remain poor and in In addition, they may experience difficulties or obstacles to achieving better changes.

This theory shows that poor countries are trapped in a cycle of poverty that is difficult to overcome. For example, limited access to education, health, and basic services can hamper human resources (Nurjihadi & Dharmawan, 2016). Without education, a person will find it difficult to get a job, let alone create new jobs or businesses. Apart from that, poor health will hinder individual productivity, thus it becomes a challenge for both individuals and families and society to break the chain of poverty.

Human Development Index

According to BPS (2020), the Human Development Index (HDI) is a combined indicator to test the achievement of society's establishment and standard of living. In 1990, the United Nations Development Program (UNDP) created this index to highlight the importance of people and their resources for development. Human development in Indonesia tends to be more about poverty. The most important thing for poor people is education and health, which is different when compared to people who are not poor because the main asset of poor people is their manual labor (Sulistio Mirza, 2012). According to the United Nations Development Program (UNDP Indonesia), the indicators measuring the size of the Human Development Index (HDI) are:

a. Longevity is measured by the variable life expectancy at birth or life expectancy.

b. The level of education is assessed from two indicators, namely population literacy above 15 (adult literacy level) and average years more than 25 years (average years of schooling).
c. A good standard of living can be assessed from per capita expenditure after alignment.

Income per capita

Per capita, income is the average income of the population in a country. This per capita income can be obtained from the division of national income in a country divided by the population in a particular year. This per capita income is usually used to compare the welfare of living or standard of living in a country from year to year. By making such comparisons, someone or we can find out whether the welfare of society has increased or not by a certain average.

Population growth

Population growth represents all the people who live or reside in a particular area. This population growth can be known by changes in the number of individuals at a certain time (Kevin et al., 2020). According to the theory put forward by *Thomas Robert Malthus*, who explained that uncontrolled population growth could result in food shortages, hunger, and thus poverty. According to him, humans develop faster than production to meet human needs. Humans develop quickly in sequential order. Meanwhile, food production growth can increase according to the arithmetic series. Thus, because human growth is faster than the development of production output, it can lead to increasing poverty.

Zakat

The main principle of zakat is *ta'awun* which means helping each other as a manifestation of the obligation to pay zakat. Zakat is strictly obligatory and has been mentioned in the Qur'an thirty times and twenty-seven times along with the prayer command (Purbasari, 2015). The distribution of zakat can run well depending on how the arrangements are made by the zakat office or institution concerned. When zakat is given to the community with good and appropriate policies, the benefits will be more effective (Lapopo, 2012).

RESEARCH METHODS

This research uses a quantitative research model, namely where the analysis emphasizes numerical data which is processed using statistical methods. In this research, the author took the research object on the island of Java, which consists of six provinces, namely, Central Java Province, East Java Province, West Java Province, DKI Jakarta Province, Banten Province, and DI Yogyakarta Province. The period used in this research is from 2017-2022. Sampling in this research used a saturated sampling technique. Saturated sampling is a sample determination technique if all members of the population can be used as samples in research. In this research, the secondary data used is panel data which is combined data from *time series data* which in this research is from 2017-2022, and *cross section data* or latitudinal data from 6 provinces on the island of Java with sources from the BPS website. and BAZNAS.

Population and Sample

1. Population

    This research analyzes the human development index, per capita income, population growth, and poverty on the island of Java with zakat as a moderating variable. This data is in the form of panel data, a combination of *time series data* from 2017-2022, and *cross-section data* consisting of 6 provinces on the island of Java, namely, Central Java, East Java, West Java, DI Yogyakarta, Banten, and DKI Jakarta.

2. Sample

    The sample in this study contains all data on the human development index, per capita income, population growth, poverty, and zakat on the island of Java for 2017-2022 obtained from BPS and BAZNAS, totaling 36 data obtained from annual data for 2017-2022.

Operational definition

1. Dependent Variable (Dependent variable)

    In this study, the variable poverty is used as the dependent variable. In this research, poverty data was obtained or obtained from the Central Statistics Agency (BPS) expressed in units of thousands of people with annual data used.

2. Free Variable (Independent Variable)

    a. HDI

       One measuring tool to see the quality of human resources in a country is to use the Human Development *Index* (HDI). The human development index is a concept that tries to combine the education index, health index, and purchasing power index.

    b. Income per capita

       Per capita, income is the average income of the population in a country. This per capita income can be obtained from the division of national income or gross regional domestic product (GRDP) in a country divided by the population in a particular year.

    c. Population growth

       In calculating population growth using the formula:

$$Population\ Growth = \frac{Pn - Pn1}{Pn1} \times 100\%$$

       Where,
       Pn: Current year population
       Pn1: Population of the previous year

3. Moderating Variables

    It is hoped that the moderating variable in the form of zakat, with the presence of this zakat variable, can moderate the independent variables in this research, namely the human development index, per capita income, population growth, and the dependent variable, namely the poverty variable.

RESULTS AND DISCUSSION

Results

Statistical testing in this research uses multiple linear regression models and MRA to compare the variables HDI, income per capita, and population growth against poverty with zakat as a moderating variable. The results of the MRA multiple linear regression test are as follows:

Table. 1 Results

Variables	Coefficient	Std. Error	t-Statistics	Prob.
C	190.7949	52.74568	3.617261	0.0020
D(X1)	-431.2445	106.7972	-4.037975	0.0008
D(X2)	-0.381512	0.256123	1.489567	0.0437
D(X2Z)	-1.12E-06	1.58E-06	-0.707382	0.4884
D(X3Z)	0.000503	0.000967	0.520035	0.6094
AR(1)	0.119390	0.162241	0.735884	0.4713

R-squared	0.570787	Mean dependent var	29.76542
Adjusted R-squared	0.451562	S.D. dependent var	154.1517
S.E. of regression	114.1595	Akaike info criterion	12.52539
Sum squared resid	234583.2	Schwarz criterion	12.81990
Log-likelihood	-144.3047	Hannan-Quinn Criter.	12.60352
F-statistic	4.787453	Durbin-Watson stat	2.216918
Prob(F-statistic)	0.005872		

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Inverted AR Roots   .12

The results of the regression model after carrying out the tests above obtained a model output that can be explained as follows:

1. $D(Y) = \alpha + \beta1*D(X1) + \beta2*D(X2) + \beta3*D(X2Z) + \beta4*D(X3Z) + \beta5* AR(1)$
2. Poverty = 190.7949 - 431.2445 - 0.381512 – 1.12E-06 + 0.000503 + 0119390

Furthermore, below we will explain again the results of the output that has been processed using *Eviews* 10, which are as follows:

a. Coefficient of Determination Test (R^2)
   adjusted R-Square coefficient of determination is 0.451562, thus showing that as much as 45.16% of poverty can be explained by variations, namely HDI, per capita income, population growth, and zakat. Meanwhile, 54.84% could be explained by other independent variations that were not included in this study.

b. Simultaneous Test (F Test)
   This test needs to be carried out to find out whether all independent variables can have a simultaneous impact on the independent variables. You can find out whether the impact is simultaneous or not, it can be seen from the *prob (F-statistic) value.* If *the prob (F-statistic) value* is <0.05 then it can be said to have a significant influence. The results above show that the *prob value (F-statistic)* is 0.005872, which means it is smaller than 0.05. So it can be concluded that the HDI variables, per capita income, population growth, and zakat can have a significant influence on the poverty variables on the island of Java in 2016-2022.

c. T-test
   The hypothesis can be accepted if the probability value is <0.05, while the hypothesis will be rejected if the probability value is >0.05. The following are the results of the data management output that has been carried out:
   1. HDI
      Based on the test results that have been carried out, the HDI (X1) variable has a probability value of 0.0008, which is smaller than 0.05, and the HDI (X1) has a coefficient value of -431.2445. Thus it can be concluded that HDI has a negative and significant influence on poverty.
   2. Income per capita
      By the test results that have been carried out, the per capita income variable (X2) has a coefficient value of -0.381512 with a probability value of 0.0437, so the probability value is <0.05 or thus it can be concluded that the per capita income variable has a negative and significant influence on poverty.

3. Per capita income is moderated by Zakat

   Based on the results of the T-test, the variable per capita income moderated by zakat shows a coefficient value of -1.12E-06 with a probability value of 0.4884, which means > 0.05. So it can be concluded that zakat is not able to moderate per capita income against poverty.

4. Population Growth is moderated by Zakat

   By the results that have been tested, the population growth variable moderated by zakat shows a coefficient value of 0.000503 and a probability value of 0.6094, so the probability value obtained is > 0.05. Thus it can be seen that zakat is unable to moderate population growth and poverty.

Discussion

1. Analysis of equations in the model:
   a. The Effect of HDI on Poverty

      From the test results carried out by the researchers, the results showed a negative coefficient of 43.2445, meaning that increasing the human development index would reduce poverty by 43.2445. Apart from that, the test that has been carried out also produces a probability of 0.0008, which means it is smaller than 0.05, so it can explain that the human development index has a significant effect on poverty. Apart from that, the human development index also has a negative and significant effect on poverty, meaning that H1 is accepted.

      Increasing the overall HDI can help reduce poverty on the island of Java in 2017-2022, this is due to providing better access and opportunities that enable people to improve their quality of life. Apart from that, HDI itself consists of three aspects, namely health, education, and a decent life, which determine the quality of people's lives (Mukhtar et al., 2019).

   b. The Effect of Per Capita Income on Poverty

      The results of the test carried out by the researcher show a negative coefficient of 0.381512, thus providing an explanation that per capita income can reduce the poverty level by 0.381512. Apart from obtaining a negative coefficient, a probability result was also obtained, namely 0.0437 meaning smaller than 0.05, which means that the per capita income variable shows negative and significant results on poverty. So, the proposed hypothesis or H2 can be accepted.

      This increase in per capita income is a reflection of prosperity or well-being for each region, with an increase in per capita income it can also increase people's purchasing power. Increasing purchasing power illustrates the welfare of society, so this prosperity illustrates how the poverty rate is decreasing. Apart from that, when per capita income increases it will also increase the standard of living in society as well. In this way, people will get a decent living, poverty will also decrease. This is in line with research conducted by (Azizah & Kusuma, 2018) which states from the results of their research that the per capita income variable has a negative and significant effect on poverty.

   c. The Effect of Per Capita Income on Poverty which is moderated by Zakat

The research results show that the coefficient is negative, namely 1.12E-06 with a probability value of 0.4884, which means the probability value is greater than 0.05. Thus, per capita income moderated by zakat has a negative and insignificant effect on poverty, so that H6 is rejected. Illustrates that zakat is unable to moderate per capita income against poverty on the island of Java.

The productivity of a region will experience significant changes due to various factors, both internal and external factors. Even though zakat has great potential to overcome poverty, the amount of funds collected is often still limited. The scale of the Zakat collection is not always large enough to cover the entire population living in poverty or the lower middle class. Sometimes the selection of zakat receipts that are not on target and the lack of long-term planning in its management makes zakat slow in moderating per capita income so that it can also reduce the level of community welfare.

d. The Effect of Population Growth on Poverty which is moderated by Zakat

The results of the research obtained a coefficient of 0.000503 and a probability value of 0.6094, which means the probability value is greater than 0.05. These results also explain that population growth moderated by zakat has a positive and insignificant effect on poverty levels, thus H7 is rejected. Rejected because Zakat is unable to moderate population growth and poverty on the island of Java.

Good zakat planning and management can help emphasize population growth rates, by focusing on programs that support family planning. As is the case with the theory put forward by *Malthus* which emphasized birth control to reduce hunger and poverty. However, in this case, it turns out that Zakat has not been able to moderate by itself. To overcome poverty, there is a need for other supporting factors that are considered to be able to help Zakat in moderating. There is still a need for integrated efforts to encourage growth and management that always pays attention to long-term sustainable growth so that it can have a good impact on poverty reduction.

2. Analysis of the Equations output by the model:
   a. The Effect of Population Growth and Zakat on Poverty

   Based on the results of the multicollinearity test, the variables Population Growth (X3) and Zakat (Z) show that the results are affected by symptoms or problems of multicollinearity so they need to be excluded or eliminated in the model equation to cure the symptoms of multicollinearity. Thus, variables X3 and Z are not continued to carry out further tests, and it is concluded that the third (H3) and fourth (H4) hypotheses are rejected or not accepted.

   b. The influence of HDI on Poverty is moderated by Zakat

   In line with the results of the multicollinearity test that has been carried out, it shows that the variable from multiplying HDI and Zakat (X1Z) shows results that are symptomatic of a multicollinearity problem, so it needs to be removed or eliminated to cure the symptoms. Thus, zakat is unable to moderate the

influence of HDI on poverty, so indirectly the fifth hypothesis (H5) is rejected or not accepted.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of data processing tests that have been carried out by researchers to determine the influence of HDI, Per Capita Income, and Population Growth on Poverty with Zakat as a moderating variable, it can be concluded as follows :

1. The HDI variable has a negative and significant effect on the Poverty variable on Java Island in 2017-2022.
2. The Per Capita Income variable has a negative and significant effect on the Poverty variable on Java Island in 2017-2022.
3. The Population Growth variable has no influence on the Poverty variable on Java Island in 2017-2022.
4. The Zakat variable does not affect the Poverty variable on Java Island in 2017-2022.
5. Zakat cannot be used as a moderating variable for the influence of HDI on Poverty on Java Island in 2017-2022.
6. Zakat is unable to moderate the influence of Per Capita Income on Poverty on Java Island in 2017-2022.
7. Zakat is not able to moderate the influence of the Population Growth variable on Poverty on Java Island in 2017-2022.

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