Analysis of inflation, population, and economic growth on poverty in Muslim-majority provinces in Indonesia

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ABSTRACT
This study aims to determine the effect of inflation, population, and economic growth on poverty in Indonesia. The object of this research is the Muslim majority population in 10 provinces in Indonesia in 2017–2021. In this study, the data used are time series obtained from Statistics Indonesia (BPS). The method used to see the effect of using a panel data regression approach is the Random Effect Model. The study results show that simultaneously, inflation has no effect on poverty, population size also has a positive effect on poverty, while economic growth has a negative effect on poverty. Of all the variables, inflation, population, and economic growth simultaneously significantly affect poverty in 10 provinces with the majority Muslim population in Indonesia.

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How to cite:

1. Introduction

Poverty is a social state. Poverty is a universal social state where no nation or country is free from poverty. Poverty, in reality, refers to the situation of suffering and insufficiency that a person experiences. This will make the community unable to meet the needs of life and the inaccessibility of the state in providing social protection to the community (Didu & Fauzi, 2016).

According to BPS, Poverty is calculated with the ability to meet basic interests. In this approach, poverty is viewed as the inability of the economy to meet basic needs in the form of food and non-

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food needs, which are considered costs. People are considered poor if their average per capita monthly expenditure is below the poverty line.

Today it is often associated with poverty in society and is often accused of being the cause of poverty. The facts and data shown as a result of research conducted by Thawil explain the problem of poverty and backwardness in Islamic countries (Hakim & Syaputra, 2020). The study found that 30 of the 36 poorest countries in Asia and Africa are predominantly Muslim. It is difficult for Muslims to improve their image and return to the top of the world.

Data from the Central Statistic Agency (BPS) shows that the total population of Indonesia in 2021 is 269.6 million people, while the poor population is recorded to soar to 27.55 million people, equivalent to 10.19% of the population. While the Muslim population in Indonesia is estimated to reach 229 million people, this figure is equivalent to 87.2% of the total population in Indonesia or 13% of the total Muslim population worldwide.

One of the factors that affect poverty is population. According to Malthus that a large number of inhabitants will bring suffering. Because the increase in the number of people is faster than the speed of natural resources, the point is that the poverty rate will also increase if the population continues to increase (Mulyadi, 2007). Table 1 shows the severity of poverty in Indonesia based on Muslim provinces in Indonesia

<table>
<thead>
<tr>
<th>Province</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceh</td>
<td>829.80</td>
<td>831.50</td>
<td>809.76</td>
<td>833.91</td>
<td>829.26</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>302.62</td>
<td>303.55</td>
<td>298.00</td>
<td>306.00</td>
<td>291.79</td>
</tr>
<tr>
<td>Gorontalo</td>
<td>203.69</td>
<td>188.30</td>
<td>184.71</td>
<td>185.31</td>
<td>184.60</td>
</tr>
<tr>
<td>Jawa Barat</td>
<td>3774.41</td>
<td>3539.40</td>
<td>3375.89</td>
<td>4188.52</td>
<td>4004.86</td>
</tr>
<tr>
<td>Jawa Tengah</td>
<td>4197.49</td>
<td>3867.42</td>
<td>3679.40</td>
<td>4119.93</td>
<td>3934.01</td>
</tr>
<tr>
<td>Jawa Timur</td>
<td>4405.27</td>
<td>4292.15</td>
<td>4056.00</td>
<td>4585.97</td>
<td>4259.60</td>
</tr>
<tr>
<td>Kalimatan Selatan</td>
<td>194.56</td>
<td>195.01</td>
<td>190.29</td>
<td>206.92</td>
<td>197.76</td>
</tr>
<tr>
<td>NTB</td>
<td>748.12</td>
<td>735.62</td>
<td>705.68</td>
<td>746.04</td>
<td>735.30</td>
</tr>
<tr>
<td>Sumatera Barat</td>
<td>359.99</td>
<td>352.24</td>
<td>343.09</td>
<td>364.79</td>
<td>339.93</td>
</tr>
<tr>
<td>Sumatera Selatan</td>
<td>1086.76</td>
<td>1076.40</td>
<td>1067.16</td>
<td>1119.65</td>
<td>1116.61</td>
</tr>
</tbody>
</table>

Table 1 Severity of Poverty

shows that the poverty rate in 10 provinces in 2017-2021 could be interpreted to mean that the level of poor people increases yearly. In East Java Province, there is the highest poverty. This poverty occurs due to several factors, including the fluctuating inflation rate and the population that is always increasing, accompanied by slow economic growth.

The contributing factors of poverty are inflation, the increase in prices of goods in particular and in a sustainable manner (Nopirin, 1992). If inflation is high but income is fixed, it leads to a high level of poverty. If inflation is too large, it can lead to economic stability and currency exchange rates, causing public interest to decline (Novianto, 2016).

Figure 1 shows that each province's inflation percentage from 2017-2021 has experienced relevant additions and decreases. Based on 2017, the highest inflation rate occurred in Gorontalo province, at 4.34%. Meanwhile, in 2021 the highest inflation rate occurred in East Java at 2.45%.
Inflation is one of the most important indicators for alleviating poverty. Inflation is a considerable problem in the economy of every country, including Indonesia. A domestic shock led to price fluctuations in the domestic market, which ended with increased inflation in the economy (Mulyani, 2020). Studi empirical prove inflation affects poverty (Mardiatillah, Panorama, & Maftukhatusolikah, 2021; Ningsih & Andiny, 2018; Windra, Marwoto, & Rafani, 2016). While other studies show that inflation does not affect the poverty rate (Hambarsari & Inggit, 2016; Khumairoh, EDS, Aida, Qomariah, & Nasir, 2018).

Another factor that hinders poverty is the population. Every year the number of residents in an area will increase. If the number of people increases yearly, this can lead to poverty, depending on whether people receive jobs or not to fulfill their lives. The government can only provide jobs if the population is high (Azizah et. Al, 2018). Figure 2 is the total population in Indonesia by province with a Muslim majority population in Indonesia in 2017 -2021.

Figure 1. Inflation Severity of 10 Muslim-Majority Provinces (Percent)

Figure 2. The total population of 10 Provinces in Indonesia is Majority Muslim

Source: Statistics Indonesia
Figure 2 shows the population level in 10 provinces in the chronic year has increased. The largest population is found in West Java province, while the least is in Gorontalo province. Rapid Population Growth can cause serious problems for welfare and development. If a large population and high economic support are not suitable, it can cause various problems, such as poverty and instability of the whole country (Azizah et al., 2018). Empirical studies prove that population growth can positively affect poverty (Nabawi, 2020; Sari, 2021; Widowati, Prijanto, & Destiningsih, 2018). Meanwhile, researchers argue that population growth can negatively affect poverty (Agustina et al., 2021).

In addition to population growth, economic growth is another index related to toxicity. Economic growth is defined as an increase in the economy's productive capacity in the form of an increase in national income. Economic growth signifies successful economic development (Purba, 2020).

Table 3. Economic Growth of 10 Muslim-Majority Provinces in Indonesia (Percent)

<table>
<thead>
<tr>
<th>Province</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceh</td>
<td>4.19</td>
<td>4.61</td>
<td>4.14</td>
<td>-0.37</td>
<td>2.79</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>4.98</td>
<td>4.97</td>
<td>4.94</td>
<td>-0.02</td>
<td>3.24</td>
</tr>
<tr>
<td>Gorontalo</td>
<td>6.73</td>
<td>6.49</td>
<td>6.40</td>
<td>-0.02</td>
<td>2.41</td>
</tr>
<tr>
<td>Jawa Barat</td>
<td>5.33</td>
<td>5.65</td>
<td>5.02</td>
<td>-2.52</td>
<td>3.74</td>
</tr>
<tr>
<td>Jawa Tengah</td>
<td>5.26</td>
<td>5.30</td>
<td>5.36</td>
<td>-2.65</td>
<td>3.32</td>
</tr>
<tr>
<td>Jawa Timur</td>
<td>5.11</td>
<td>5.47</td>
<td>5.53</td>
<td>-2.33</td>
<td>3.57</td>
</tr>
<tr>
<td>Kalimatan Selatan</td>
<td>5.28</td>
<td>5.08</td>
<td>4.09</td>
<td>-1.82</td>
<td>3.48</td>
</tr>
<tr>
<td>NTB</td>
<td>0.09</td>
<td>-4.50</td>
<td>3.90</td>
<td>-0.62</td>
<td>2.30</td>
</tr>
<tr>
<td>Sumatera Barat</td>
<td>5.30</td>
<td>5.14</td>
<td>5.01</td>
<td>-1.62</td>
<td>3.29</td>
</tr>
<tr>
<td>Sumatera Selatan</td>
<td>5.51</td>
<td>6.01</td>
<td>5.69</td>
<td>-0.11</td>
<td>3.58</td>
</tr>
</tbody>
</table>

Source: Statistics Indonesia

Table 3 is Economic Growth in each Region experiences a different increase in each region. In 2020, 10 of these Regions experienced growth contact, compared to 2017, 2018, 2019, and 2021. Economic growth can be maximized to reduce poverty. Even though economic growth in an area has increased, there is a lot of willingness for someone to invest directly in many available jobs. This job can reduce the unemployment rate and make the poverty rate small (Ningsih & Andiny, 2018). Empirical Studies prove that economic growth can negatively affect poverty (Didu & Fauzi, 2016; Nainggolan, 2020; Romi & Umiyati, 2018). Meanwhile economic growth positively affects the poverty rate (Prasetyoningrum, 2018; Sendouw, Rumate, & Rotinsulu, 2019). This paper analyzes the effect of inflation, population, and economic growth on poverty in the Muslim-majority population in Indonesia.

2. Literature Review

Nurkes states that the country is poor because he is poor (Kuncoro, 2005). Based on the rampant backwardness, imperfection of the market, and lack of capital resulting in the low productivity of a country. In the end, it makes the low income they receive. A low-income level has implications for the lack of savings and a minimal level of investment that will bring a condition of backwardness to the community. There are two circles of poverty, the first of which is that the low price of one's income will affect the low level of productivity, which results in a low level of capital. If the investment value is low, the level of productivity will be low. Secondly, the demand factor, investment, or capital in developing countries is still low. This is because the market area for various
commodities is limited, making a person's income level still low. A person's income level is still low due to low productivity levels.

**Inflation and Poverty**

A factor that can affect poverty is inflation. Inflation, in general, is defined as the tendency for the price of goods and services to rise continuously. When the price of domestic goods and services increases, inflation also increases. An increase in the price of goods and services leads to a decrease in the value of money. This inflation can also be interpreted as a decrease in the money value relative to the value of goods and services in general. The results showed that inflation does not affect poverty (Hambararsi & Inggit, 2016; Khumairoh et al., 2018; Windra et al., 2016). While other studies show that inflation significantly affects poverty (Kevin, Putri, & Nasrun, 2020; Ningsih & Andiny, 2018).

H1: Inflation Positively Affects Poverty

**Population and Poverty**

The number of inhabitants and the population is a factor that can affect poverty. Population growth is defined as a dynamic balance between population dimensions that can increase or decrease the number of inhabitants (Arsandi, Ismiyati & Hermawan, 2017; Rahmad, 2018; Mulyadi, 2019; Gomes, 2020). High population numbers coupled with increased population growth are thought to only increase the burden of development. The study's results were that the variable number of inhabitants has a positive effect (Sari, 2021; Widowati et al., 2018. The study by Nabawi (2020) said that the population variable affects poverty. It is assumed that the population will decrease, and poverty will continue to rise. This is due to the age structure imbalance between young and adults, the number of migrants who stop by and open businesses, and many beggars. Without being balanced with improvements in population quality and increased food resources, it will cause poverty to increase, get out of control and result in an economic development process. Other studies show that population numbers do not affect poverty (Agustina et al., 2019). Adapun (Ristika et al., 2021) shows that the number of people negatively affects the poverty rate in East Java Province because most of the population living in East Java Province is a working-age population. Hence, the opportunity to improve welfare and reduce poverty is wide open due to the high productivity of the community.

H2: Population Has a Positive Effect on Poverty

**Economic Growth and Poverty**

Economic growth is defined as the main ingredient of economic activity that improves goods and services produced by society (Sukirno, 2006). Research Results show that economic growth negatively affects poverty (Didu & Fauzi, 2016; Nainggolan, 2020; Romi & Umiyati, 2018). This condition illustrates that economic growth cannot in itself alleviate poverty. There is often a trade-off between economic growth and poverty. The study also said economic growth positively affects poverty in Manado City (Sendouw et al., 2019). It is said that the economic growth in Manado over the past ten years is less in favor of the underprivileged Manado community.

H3: Economic growth has a positive effect on poverty.

3. **Research Methods**

This study uses saturated sampling techniques and uses quantitative research. This type of quantitative research is based on the philosophy of positivism, which is used to examine samples and populations (Sugiyono, 2016). This study uses data collection techniques in the form of secondary data obtained from the Central Statistics Agency. This study was conducted using panel data regression analysis techniques to test and analyze the effect of inflation, population, and economic growth on poverty levels in 10 Muslim-majority population provinces in Indonesia.
The analysis method on the panel data is a combination of time series and cross-section (Mohammad, 2018). This study's forms of regression for panel data are as follows.

\[ Pov = \beta_0 + \beta_1 \text{Inf}_t + \beta_2 \text{Pop}_t + \beta_3 \text{Growth}_t + \epsilon \]

Note:
- Pov = Poverty
- \( \beta_0, \beta_1, \beta_2, \beta_3 \) = Coefficient
- Inf = Inflation
- Pop = Population
- Growth = Economic growth
- \( \epsilon \) = Error term
- i = Data cross-section
- t = Data time series

A few approaches can be used to estimate panel data (Bawono & Shina, 2018). The approach can be made using the Common Effect Model, Fixed Effect Model, and Random Effect Model.

4. Result and Discussion

Table 4. Research Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>CEM</th>
<th>FEM</th>
<th>REM</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>279.3299</td>
<td>1876.271</td>
<td>215.5716</td>
</tr>
<tr>
<td></td>
<td>(0.1470)**</td>
<td>(0.0293)*</td>
<td>(0.3290)**</td>
</tr>
<tr>
<td>INF</td>
<td>-32.46851</td>
<td>5.630451</td>
<td>22.62603</td>
</tr>
<tr>
<td></td>
<td>(0.6821)**</td>
<td>(0.8339)**</td>
<td>(0.3732)**</td>
</tr>
<tr>
<td>POP</td>
<td>0.09161</td>
<td>-1.015659</td>
<td>0.088513</td>
</tr>
<tr>
<td></td>
<td>(0.0000)*</td>
<td>(0.7639)**</td>
<td>(0.0000)*</td>
</tr>
<tr>
<td>GROWTH</td>
<td>-15.75412</td>
<td>-22.21566</td>
<td>-21.9745</td>
</tr>
<tr>
<td></td>
<td>(0.5190)**</td>
<td>(0.0077)*</td>
<td>(0.0076)*</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.934556</td>
<td>0.995418</td>
<td>0.690759</td>
</tr>
<tr>
<td>Adjusted R-Squared</td>
<td>0.930288</td>
<td>0.993932</td>
<td>0.670591</td>
</tr>
<tr>
<td>F-statistic</td>
<td>218.9645</td>
<td>669.8847</td>
<td>34.25048</td>
</tr>
<tr>
<td>Prob (f-statistic)</td>
<td>0.000000</td>
<td>0.000000</td>
<td>0.000000</td>
</tr>
</tbody>
</table>

Note: *Signification 0.01 ** Signification 0.05 *** Signification 0.10

Table 5. Model Selection Results

<table>
<thead>
<tr>
<th>Model Adjustment</th>
<th>Prob</th>
<th>Selected Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chow test</td>
<td>0.000</td>
<td>FEM</td>
</tr>
<tr>
<td>Hausman test</td>
<td>0.185</td>
<td>REM</td>
</tr>
</tbody>
</table>

Based on Model Adjustment Testing in this Research Table using Random Effect Model. (REM)

Classical Assumptions

Table 6. The result of the Normality Test

<table>
<thead>
<tr>
<th>Jarque – Bera</th>
<th>0.171835</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>0.917870</td>
</tr>
</tbody>
</table>

Shows that the Probabilitas value is 0.917670 > 0.05. Then it can be concluded that the data is normally distributed.

In Table 7, the multimodality test results show no symptoms of multicollinearity because the variable value is less than 0.10. Meanwhile, the data is stated to be multicollinearity when the variable is greater than 0.10.
Table 7. Multiconeality Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>INF</th>
<th>POP</th>
<th>GROWTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF</td>
<td>1.000000</td>
<td>0.100484</td>
<td>0.449278</td>
</tr>
<tr>
<td>POP</td>
<td>0.100484</td>
<td>1.000000</td>
<td>0.030609</td>
</tr>
<tr>
<td>GROWTH</td>
<td>0.449278</td>
<td>0.030609</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

It is known that Dw = 1.859674, table dL = 1.4206 table du = 1.6739. Because the value of Dw is 1.859674, from the autocorrelation test, it shows that Watson's Durbin value of 1.859674 is between -2 and +2, and it can be concluded that there is no autocorrelation.

Table 8. Heteroscedasticity Test Results

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>1.895140</th>
<th>Prob. F(9,17)</th>
<th>0.1225</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obs*R-squared</td>
<td>13.52230</td>
<td>Prob. Chi-Square(9)</td>
<td>0.1404</td>
</tr>
<tr>
<td>Scaled explained SS</td>
<td>15.76173</td>
<td>Prob. Chi-Square(9)</td>
<td>0.0720</td>
</tr>
</tbody>
</table>

The results in the White Test in Table 8 show the Probability obs*R square value = 13.52230 and prob. Chi-Square of 0.1404 > 0.05, then the model is heteroscedasticity, and there is no heteroscedasticity.

The goodness of fit test

Table 4 shows that the regression test's R2 or R-squared test value is 0.690759, which means as much as 69%. This means that the poverty variable is influenced by inflation, population, and economic growth, which means it has a significant influence. At the same time, the remaining 31% explained that other variables outside the study influence the poverty variable. In addition, the probability value (F-statistic) is 0.000000, then < 0.05. The F test is scientifically a free variable affecting the bound variable.

Influence Validity Test (T-Test)

Table 9. Effect Validity Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF</td>
<td>22.62603</td>
<td>0.3732</td>
</tr>
<tr>
<td>POP</td>
<td>0.088513</td>
<td>0.0000</td>
</tr>
<tr>
<td>GROWTH</td>
<td>-21.97450</td>
<td>0.0076</td>
</tr>
</tbody>
</table>

The inflation variable obtained a coefficient of 22.62603 and a probability value of 0.3732. The regression coefficient is insignificant at a significance level of 5%, p = 0.3732 > 0.05. Therefore, that inflation does not affect poverty. So H1, this study was rejected. The variable number of inhabitants obtained a coefficient of 0.088513 probability value of 0.0000. At the level of signification α:5%, this regression coefficient is significant because p = 0.0000 < 0.05, it can be seen that the number of people positively influences poverty. So H2, this study was accepted. And the Economic Growth variable gives a negative coefficient of 21.97450, a prob value of 0.0076. The signification rate α:5%, P = 0.0076 < 0.05, so the regression coefficient is significant. It indicated that economic growth negatively affects the electability with H3 this research in Accept.

Discussion

Inflation and Poverty

Based on the influence validity test (t-test) results, it concluded that inflation positively affects poverty. This means that a person will not be affected by the inflation rate because the poor do not have high purchasing power. Even though the inflation rate is stable, the person does not have purchasing power.

This theory follows Nurke's theory, which says that when the income level is low, it will cause people's ability to save low. In theory, higher inflation will affect poverty. This is in line with
research conducted by Kevin et al. (2020), Hambarsari & Inggit (2016), and Khumairoh et al. (2018), which states that inflation does not affect poverty.

Al-Maqrizi mentioned that inflation generally occurs when prices continue to rise (Amalia, 2005). This leads to a shortage of goods and services because people have to spend more money to get goods of the same quality. If the price of goods increases while the purchasing power of citizens remains, it can lead to poverty. In this case, it is not in line with the research conducted by Windra et al. (2016) and Ningsih & Andiny, (2018). The results of this study show that the inflation variable has a positive effect on poverty.

Inflation does not affect poverty, as marked by the inflation rate in 10 provinces in 2017-2021. This inflation is still classified as mild or stable inflation. For this reason, the government continues to strive to stabilize food prices and basic needs so that people can meet their needs. With monetary and fiscal policy carried out by the government, it can stabilize inflation. If inflation is stable, it can reduce poverty.

**Population and Poverty**

Based on the variable research on the number of people with a positive impact on poverty. Where the increase in the number of inhabitants is high, it will cause population density in the region. If the population is not balanced with improved quality and increased food resources, it can lead to poverty.

This study's results align with Malthus's theory, which explains that natural resources are limited while daily human needs are not limited (Mulyadi, 2019). If the population continues to increase while the natural resources are limited, it will create poverty. In other words, the increase in human needs is inversely proportional to the limited natural resources (in production). Empirically, this study also shows the same results as the research that has been carried out by Azizah & Kusuma (2018), Sari (2021), and Ristika et al. (2021), the variable population has a positive and significant impact on poverty.

Viewed from another point of view, the number of people can affect the amount of product produced. If the amount of production is balanced with a balanced population, it can increase the quantity of production, leading to poverty. Islam encourages its people to have quality and quantity offspring. Large populations should also be aligned using good quantity, as Agustina argues that the variability of the population does not affect impoverishment in Aceh (Agustina et al., 2019).

**Economic Growth and Poverty**

Based on research, economic growth negatively affects poverty. An increase in economic growth in the regions of Indonesia will result in a decrease in the poverty rate. As economic growth increases in Indonesia, poverty will decrease.

According to Kuznets, there is a very strong link between economic growth and poverty (Tambunan, 2001). This is because the level of misdevelopment tends to increase in the early stages of building and decreases as it approaches the final stage of development. Empirically, this study shows the same results as the research conducted by Nainggolan (2020), Didu & Fauzi (2016), and Romi & Umiyati (2018), which states that economic growth negatively impacts poverty.

At-Tariqi argues that economic growth is not just material but an inclusive productive activity closely related to distributive justice (Mutaqqin, 2018). Islam states that economic growth is not measured solely by economic aspects but by human activities, which simultaneously shows human material and spiritual growth and progress. The pace of economic growth can affect the level of government revenue. As a result, the fiscal and revenue flow into a country's economy only flows to the upward group of people in other terms of income inequality.

The policies implemented by local governments have not been fully directed at building a sector that absorbs a lot of labor. This will impact the low absorption of labor, so the population's income
will decrease. This can lead to poverty. The results of this study are not in line with the research conducted by Prasetyoningrum (2018) and Sendouw et al. (2019), which say that economic growth positively influences poverty.

5. Conclusion

Based on the results of data analysis conducted on poverty from the data obtained, it can be concluded that: The inflation rate does not affect poverty in 10 provinces in Indonesia. The variable population positively affects poverty in 10 provinces in Indonesia. And Economic growth has a significant negative effect on poverty in 10 provinces in Indonesia.

6. Acknowledgments

The researcher also expressed gratitude to all parties who contributed to completing this research.

7. Reference


