The Effect of Islamic Bank Financing on the Human Development Index: A Case Study of 15 Cities on Java Island

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Abstract: The Human Development Index (IPM) measures how people can access development results in obtaining income, health, and education. This study aimed to determine whether Islamic bank financing, poverty, and Gross Regional Domestic Product (GRDP) have a relationship and influence the Human Development Index in 15 cities in Java Island for 2015-2021. The quantitative approach uses secondary data from the Financial Services Authority (OJK) for Islamic bank financing data. In contrast, Poverty and GRDP data from the Central Bureau of Statistics (BPS). The data used in this study is annual data from 2015 to 2021. The estimation method used is panel data regression with the Random Effects model. The study results that the Islamic bank financing variable has a significant positive effect on HDI. Meanwhile, the Poverty and GRDP variables significantly and negatively affect the Human Development Index. Simultaneously, the variables of Islamic bank financing, poverty, and GRDP affect the Human Development Index.

Keywords: Islamic Bank Financing, Human Development Index, Poverty, Gross Regional Domestic Product.

Introduction

A measuring apparatus to decide the quality and improvement of human assets is by looking at the Human Development Index (HDI). The Human Development Index (HDI) was presented by the joined together United Nations Development Program (UNDP) in 1990 in an arrangement of yearly reports entitled “Human Advancement Report.”. This index is prepared as one of the alternative indicators to assess the success of development carried out by a country. The HDI of countries in the world classifies into three groups: high, medium, and low.

According to (Sania et al., 2021), there are two reasons underlying human development. First, numerous creating countries have achieved high financial development but fizzled in diminishing the gap in human improvement. Moment, human resources use as input in financial development preparation. If human development is fruitful, the quality of human development will be way better. As a result, it can energize the speeding up of financial development.

Indonesia, as a developing country trying to be a developed country. The government is trying to improve all aspects of the economy and human resources. As a result, HDI in Indonesia has increased over the last seven years. In 2015 it was about 69.5, which has increased in 2021 to 72.29.
Java Island is not the largest in Indonesia compared to other islands. The group of provinces on the Java island still dominates Indonesia's economy's spatial structure in 2021, with a contribution of 57.89 percent and a growth of 3.66 percent (BPS, 2022). Likewise, in the Islamic banking sector. Islamic banking is still dominating and divided into Sharia Business Units (SBU) and Sharia Rural Banks (SRB). Currently, the financing distribution is concentrated in Java at 71.19 percent, especially DKI Jakarta at 40.19 percent. If viewed from the area, as of May 23, 2019, the Financial Service Authority (OJK) said that 90 percent of loan disbursements were still on the island of Java. Moreover, the distribution of financing outside Java is only 5.2 Billion, while in Java, it is 31.8 Billion (Yulianti, 2020).

The table is the result of the average financing of Islamic banks in several top cities on the island of Java in the three years 2019-2021. The city of Jakarta primarily owns the top five averages, but in this research, only South Jakarta can see from other cities. South Jakarta has the highest average taken in the study, which is 80,680 Billion, while the lowest Jember average is 1,255 Billion. Furthermore, this research only examines 15 cities, so the 15 cities taken for research are South Jakarta, Surabaya, Bandung, Semarang, Bekasi, Surakarta, Tangerang, Malang, Sidoarjo, Cirebon, Yogyakarta, Tasikmalaya, Tegal, Jember, and Banyumas.

Deciding the welfare of a community and the victory of a region's advancement showed from a financial point of view by the expansion in Gross National Product (GNP) on a national scale amid...
Gross Regional Domestic Product (GRDP) on a territorial level. Economic growth is an indicator to assess the development progress level and is one of the impacts of the economic policies implemented. Moreover, people's acquiring control to expend an item is closely related to the human development index since acquiring control is one of the markers within the human development index (Todaro & Smith, 2006).

Human development in Indonesia is synonymous with poverty diminishment, and the venture into education and well-being will be more significant to the destitute (Syofya, 2018). Poverty has an adverse effect on HDI. The negative impact can happen since poverty stems from the obtaining control of individuals incapable of meeting fundamental needs. As a result, their health and education needs cannot neglect (Mirza, 2011). Moreover, regional autonomy allows each region to manage budgets and allocate development programs in the health and literacy sectors to increase economic growth and reduce poverty. If the poverty factor reduces, it will develop better human resources, increasing welfare.

**Theoretical Foundation**

**Human Development Index (HDI)**

The Human Development Index (HDI) is a measuring instrument that can reflect the status of human improvement. The United Nations Program (UNDP) 1990 has utilized the HDI to degree a country's endeavors to realize human advancement and distribute it in its yearly Human Development Report (HDR).

There was an improvement in the HDI methodology in 2014. There are several reasons it was changed. First, some indicators are no longer appropriate to use in calculating HDI. The education rate is not significant in measuring instruction since it cannot depict the quality of instruction. In addition, the education rate in most districts is already high, so it is not conceivable to recognize the level of education between districts. Moment, the arithmetic mean equation in calculating HDI outlines low accomplishments in one measurement that high accomplishments from other measurements can secure. In HDI's new strategy, the literacy rate within the ancient strategy supplants the School Expectation Rate, and Gross Domestic Product (GDP) per capita supplants by Gross National Product (GNP) per capita. The calculating conglomeration strategy changed from the arithmetic to the geometric mean (BPS Indonesia, 2015).

Each component of HDI is standardized, with the most minor and most extreme values recently being utilized to calculate HDI. The equation utilized is as follows:

Health Index: 

\[ I_{health} = \frac{e_0 - e_{\min}}{e_{\max} - e_{\min}} \]

Education Index: 

\[ I_{EYS} = \frac{EYS - EYS_{\min}}{EYS_{\max} - EYS_{\min}} \]
\[ I_{MYS} = \frac{MYS - MYS_{\min}}{MYS_{\max} - MYS_{\min}} \]
\[ I_{EDU} = \frac{l_{EYS} + l_{MYS}}{2} \]

Expenditure Index: 

\[ I_{EXP} = \frac{\ln(\text{expenditure}) - \ln(\text{expenditure}_{\min})}{\ln(\text{expenditure}_{\max}) - \ln(\text{expenditure}_{\min})} \]

HDI calculates the geometric mean of the health, education, and expenditure indices.

\[ \text{HDI} = \sqrt[3]{I_{health} \times I_{EDU} \times I_{EXP} \times 100} \]

**Islamic Bank Financing**

Financing is one sort of Islamic financial activity. Financing is the arrangement of stores or proportionate claims within below:

1. Profit-sharing transactions are in *mudarabah* and *musharakah*.
2. Lease transaction in *ijarah* or lease purchase in the form of *ijarah muntahiyah bittamlik*.
3. Sale and purchase transactions include *murabahah* receivables, *salam*, and *istishna’*.
4. Lending and borrowing transactions in the form of qardh receivables
5. Lease transactions in ijarah contract for multi-service transactions.

The understanding between Islamic banking, the shariah commerce unit and another party (the client accepting the office) need the other party who is being financed or given a finance office to return the reserves after a specific time. In financing transactions, Islamic banks act as providers of funds. Every customer receiving the facility (the debtor) who has received any Islamic bank financing after a particular time is obliged to return the financing to the sharia bank along with compensation.

**Poverty**

*Poverty* is a circumstance or condition experienced by an individual or bunch incapable of carrying out their life to a compassionate level. The poor are partitioned divides into two perspectives: to begin with, essential viewpoints within the resources (riches), socio-political organization, knowledge, and abilities. Second, secondary aspects, specifically within the frame of poor social systems, financial sources, and information.

There are two kinds of poverty measurement most often used absolute poverty and relative poverty.

1. **Absolute Poverty**
   The minimum income level is a barrier between poor and non-poor conditions or the poverty line. This concept refers to as absolute poverty. This concept decides the least pay to meet the physical needs of nourishment, clothing, and lodging to guarantee survival.

2. **Relative Poverty**
   Sometimes, a person's salary has come to the least essential needs. However, if it turns out that a person's pay is still much lower than the pay of the encompassing community, at that point, the individual is still within the poor category. Therefore, it happens because poverty is more determined by the surrounding circumstances. This concept became known as the concept of relative poverty.

**Gross Regional Domestic Product (GRDP)**

Gross Regional Domestic Product (GRDP) is the added value generated for all regional business and service areas, applying the total value of all economic units' final goods and services. Besides, GRDP is the sum of the included number created by all commerce units or the total value of merchandise and administrations by all regional economic units within one year.

Current prices GRDP is the number of merchandise and administrations calculated utilizing the winning costs for the year. Current prices GRDP determine the ability of economic resources, shifts, and the economic structure of a region. Meanwhile, consistent price GRDP is the value of products and administrations calculated utilizing the cost in a specific year as the reference year or base year. Constant price GRDP determines real economic growth yearly or uninfluenced economic growth by price factors.

**Literature Review**

Islamic bank financing is still relatively new compared to conventional ones. Research related to Islamic bank financing on the human development index is still scarce. However, several studies have been conducted regarding the relationship between Islamic bank financing and HDI. Some of them are researched by (Risyadi, 2018; Wardani & Al Arif 2021; Yulita Amalia et al., 2019). One of the variables in their research is Islamic bank financing held in different areas. These researches show that Islamic bank financing has a significant and positive effect. All three of these studies use path analysis. The research by (Khusnul, 2014b) concludes that Islamic bank financing affects welfare. However, this study uses panel data regression for modeling.

Several studies and research that discussed the effect of poverty on HDI conducted by (Adelfina & Jember, 2016; Larasati, 2018; Mirza, 2011; Syofya, 2018) showed a negative and significant effect on HDI in each area studied. It means that the increase in the poverty rate can reduce the HDI in some areas. Dwi (2015) also explained that efforts to suppress the number of poor people who have negative
elasticiy affect human development. If the number of poor people increases, then human development will decrease.

Previous research on Gross Domestic Regional Product (Ambya, 2021; Desmiati, 2019; Larasati, 2018; Rakhmadhani, 2018; Sania et al., 2021) showed that GRDP had influenced HDI in several provinces in Indonesia. Contrary to previous research by Susanto (2021), Regional GDP did not influence HDI, which was held in Yogyakarta. Moreover, research on GRDP has more effect on HDI than does not have an effect.

**Methodology**

Quantitative research utilizes in this study. A quantitative method, agreeing to Sugiono (2018), determines a scientific approach that sees a reality that can be classified, concreted, discernible, and quantifiable. The relationship of factors is the causal effect where the research information is within the numbers. This research will be processed using the Stata 14.2 application to obtain the results of Islamic bank financing, Poverty, and Regional GDP on HDI from the districts and cities in Java.

The type of data used in this research is secondary data which means the data collected through primary sources and made readily available for researchers to use for research. The data was obtained from The Financial Services Authority (OJK) and Central Bureau Statistics (BPS). The data used in this research is annual data from 2015 to 2021 from HDI, Islamic bank financing, Poverty, and Regional GDP variables. In addition, the fifteen chosen cities and districts on Java Island have the highest average of Islamic bank financing in three years, 2019-2021.

**Results**

**Descriptive Analysis**

<table>
<thead>
<tr>
<th></th>
<th>HDI</th>
<th>IBFIN</th>
<th>GRDP</th>
<th>PVRTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>78.0079</td>
<td>9079.909</td>
<td>4.4034</td>
<td>7.4383</td>
</tr>
<tr>
<td>Maximum</td>
<td>87.18</td>
<td>83249.38</td>
<td>7.79</td>
<td>17.52</td>
</tr>
<tr>
<td>Minimum</td>
<td>63.04</td>
<td>585.4508</td>
<td>-6.92</td>
<td>2.73</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>5.5033</td>
<td>17095.89</td>
<td>3.0656</td>
<td>3.5566</td>
</tr>
<tr>
<td>Observations</td>
<td>105</td>
<td>105</td>
<td>105</td>
<td>105</td>
</tr>
</tbody>
</table>

Note: HDI: Human Development Index, IBFIN: Islamic Bank Financing, GRDP: Gross Regional Domestic Product, PVRTY: Poverty.

The table above shows the statistics descriptive of this research over 2015 – 2021 with 105 observations. The Human Development Index ranges from 0 to 100. HDI divides into four tiers: low (HDI < 60), medium (60 ≤ HDI <70), high (70 ≤ HDI < 80), and very high (HDI ≥ 80). Furthermore, the Human Development Index's mean is 78.0079, the maximum is 87.18, the minimum is 63.04, and the standard deviation is 5.5033. Moreover, the greater the value of the standard deviation, the more diverse the value of the item or the more accurate it is with the mean. Conversely, the smaller the standard deviation, the more similar the value of the item or the more accurate it is to the mean (Meiryani, 2021). Unfortunately, the Islamic bank financing variable has a more significant standard deviation than the mean.

Islamic bank financing variables use data in the form of billions. The mean value is 9079.909 billion. The minimum is 585.4508 billion, the maximum is 83249.38 billion, and it has a standard deviation of 17095.89. The poverty variable uses the percentage of poor people. The poverty variable has a mean of 7.4383 percent. The minimum is 2.73 percent, the maximum is 17.52 percent, and the standard deviation is 3.5566. Furthermore, the Gross Regional Domestic Product variable uses GRDP growth rate data in percent. The GRDP variable has a mean of 4.4034 percent, a minimum of -6.92 percent, a maximum of 7.79 percent, and a standard deviation of 3.0656. The GRDP variable has a negative minimum number due to the impact of Coronavirus disease (Covid-19) in 2020.
Estimation of Panel Regression Model

The Chow, Hausman, and Lagrange Multiplier tests are used to choose the best model between CEM, FEM, and REM. Furthermore, this research only needs the Chow and Hausman test, while the LM test is unnecessary. The LM test determines to see the best model between Common Effect Model and Random Effect Model. The result shows that the Random Effect Model is the best. Therefore, the LM test is unnecessary because the Common Effect Model is eliminated in the Chow test.

Chow Test

The Chow test is a test to determine whether the Common Effect Model or Fixed Effect Model is the most appropriate for estimating panel data. The hypothesis of this test is as follows:

$H_0$: Common Effect Model

$H_1$: Fixed Effect Model

The testing criteria are as follows:
1. If the cross-section probability is $F < 0.05$, $H_0$ is rejected, and the Fixed Effect Model is the most appropriate.
2. If the probability of cross-section is $F > 0.05$, $H_0$ is accepted, and the most appropriate model is the Common Effect Model.

Table 3. Chow Test Result

<table>
<thead>
<tr>
<th>$F$ (3.87)</th>
<th>31.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prob&gt;F</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Based on the table result, the probability of cross-section $F$ has a value of $0.0000 < 0.05$, which means that $H_0$ is rejected. It concludes that the Fixed Effect Model is the most appropriate. Furthermore, the Hausman test chooses between the Fixed and Random Effect Models.

Hausman Test

The Hausman test determines the correct model between the fixed effect model and the random effect model that the Chow test has previously carried out. The hypothesis of the Hausman test is as follows:

$H_0$: Random Effect Model

$H_1$: Fixed Effect Model

The testing criteria are mentioned below:
1. If the probability of chi square-value $< 0.05$, $H_0$ is rejected, the Fixed Effect Model is the most appropriate.
2. If the cross-section probability is chi square-value $> 0.05$ and $H_0$ is accepted, the Random Effect Model is the most appropriate.

Table 4. Hausman Test

<table>
<thead>
<tr>
<th>chi2 (4)</th>
<th>1.77</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prob&gt;chi2</td>
<td>0.6220</td>
</tr>
</tbody>
</table>

After the Hausman test, the chi-square value is 0.6220; where the value is above 0.05, $H_0$ is accepted, and $H_1$ is rejected. As a result, the Random Effect Model is the appropriate model. Therefore, the LM test is unnecessary because the Common Effect Model is eliminated in the Chow test.
**Hypothesis Test**

Table 5. Random Effect Model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>z</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBFIN</td>
<td>0.0000431</td>
<td>0.000167</td>
<td>2.58</td>
<td>0.010</td>
</tr>
<tr>
<td>PVRTY</td>
<td>-0.6071001</td>
<td>0.0701356</td>
<td>-8.66</td>
<td>0.000</td>
</tr>
<tr>
<td>GRDP</td>
<td>-0.0750996</td>
<td>0.025072</td>
<td>-3.00</td>
<td>0.003</td>
</tr>
<tr>
<td>C</td>
<td>82.46273</td>
<td>1.228648</td>
<td>67.12</td>
<td>0.000</td>
</tr>
</tbody>
</table>

| R-Square | 0.5067 |
| Prob > chi2 | 0.0000 |

**Partial Test (t-test)**

The Islamic Bank Financing variable has a coefficient of 0.0000431 with a probability value of 0.010, less than alpha 0.05. The probability value below 0.05 indicates that $H_0$ is rejected, meaning that the Islamic bank financing variable significantly affects the human development index. The poverty variable has a coefficient value of -0.6071001 with a probability value of 0.000, which is less than the alpha of 0.05. Therefore, $H_0$ is rejected, meaning that the poverty variable significantly influences the human development index. The GRDP variable has a coefficient value of -0.0750996 with a probability value of 0.003. The probability value is below the alpha of 0.05, so $H_0$ is rejected. Thus, the GRDP significantly affects the human development index.

**Simultaneously Test (F-test)**

The test compares the calculated F-value from the estimated model output with the F table from the df value based on the probability value used. The decision-making is by probability value. If the probability p-value < 0.05 significance, $H_0$ is rejected, and all independent variables simultaneously affect the dependent variable. The result of panel data regression data with the Random Effect Model shows a probability value of the F statistic of 0.000, which is less than 0.05. The variables of Islamic bank financing, poverty, and GRDP affect the Human Development Index in several cities and districts on Java Island with a five percent significance level.

**Coefficient of Determination (R Squared)**

The purpose of the R square test is to measure the extent to which the model's ability to demonstrate the dependent variables. A small value of $R^2$ indicates that the independent variables' ability to define the dependent variable is minimal, and vice versa (Ghozali, 2011). Based on the table of the Random Effect Model, shows an R square value of 0.5067. that is, by 50.67 percent, the variable Islamic bank financing, poverty, and GRDP affect the Human Development Index. At the same time, the remaining 49.33 percent of the HDI variable is influenced by other variables not included in the study.

**Discussion**

**The Impact of Islamic Bank Financing on the Human Development Index (HDI)**

Research on this variable shows that the Islamic bank financing variable positively and significantly affects the human development index. So that if there is an increase of one unit, one billion rupiahs in Islamic bank financing, it will result in an increase in the human development index of 0.0000431 from 2015 to 2021.

Research (Khusnul, 2014a) states that by increasing the amount of financing, Islamic banking has created a market value higher than the capital invested, giving customers an excellent opportunity to carry out business activities to increase welfare. The research conducted by (Risyadi, 2018) suggests that Rama (2013) argues that if sharia banking financing continues to increase, this will increase the output of production of goods and services in the real sector. So that if the real sector increases, it will
provide welfare for the lower middle class. Furthermore, the Human Development Index is one of the standard measuring tools to see the welfare of humans or society.

An increase in channeled Islamic bank financing can also increase welfare due to the increased production of goods and services, thus causing the exchange of goods and services, which is an economic activity that can increase welfare (Nurdany, 2016). According to UNDP, one of the elements of HDI is the standard of living other than health and education. In conclusion, the HDI can increase when the standard of living increases due to increased economic activity.

**The Impact of Poverty on the Human Development Index (HDI)**

The regression estimation results show that poverty significantly influenced the human development index. However, the effect of poverty is negatively related to HDI. Therefore, if poverty rises by one percent, it will cause the human development index to decrease by 0.6071001 from 2015 to 2021 in several cities and districts on the island of Java.

The regression indicates conformity with previous research by (Adelfina & Jember, 2016; Larasati, 2018; Mirza, 2011; Syofya, 2018), where poverty has a negative influence or an inverse relationship to the human development index. That is, if poverty increases, then the human development index will decrease. In addition, this is in line with research conducted by (Suradi, 2007), where the results of the descriptive analysis state that poverty is closely related and determines the development process that prioritizes community participation. Furthermore, research conducted by Syofya (2018) states that Todaro (2006) states that HDI portrays the human development index in terms of development, equity, and reasonableness in health, education, and community welfare. The low HDI will result in low work efficiency of the populace. The low efficiency comes about in low wages, causing many poor individuals.

**The Impact of Gross Regional Domestic Product (GRDP) on the Human Development Index (HDI)**

The coefficient and probability of the GRDP variable from the results of the random effect regression model show that GRDP has a negative and significant effect on the human development index. So, if the GRDP increases by one percent, the human development index for 2015-2021 will decrease by 0.0750996 in several cities and districts on the island of Java.

Based on the results of these estimates indicate that there are differences in research results. Research (Ambya, 2021; Desmiati, 2019; Larasati, 2018; Rakhmadhani, 2018; Sania et al., 2021) suggests a positive relationship between GRDP and HDI, while research shows a negative relationship. The research conducted by (Fauzi, 2021) follows in line with the results of this study, where there is a negative relationship between GRDP on HDI. That is, an increase in GRDP can cause a decrease in HDI.

Research conducted by (Fauzi, 2021) states that one of the characteristics of present-day economic growth is the significant improvement of output per capita. The expected output development is GRDP per capita. The high output development causes changes in utilization or consumption designs to meet needs. It implies that the more economic growth increments, the higher output per capita development will be. Changes in consumption designs, in this case, the level of people’s obtaining control, will be higher. The high obtaining control of the individuals will increment the Human Development Index since people's purchasing power is one of the composite markers within the HDI called the income marker.

As in this study, there was a significant influence but negatively related. The author suspects the negative relationship between GRDP and HDI was caused by GRDP's decreasing growth in 2020, which occurred at the peak of the Covid-19 pandemic in Indonesia. Hadiwardoyo's (2020) research explains that the covid-19 pandemic affects the decline in GRDP due to the suspension of activities. As a result, per capita output decreased, and GRDP was unstable. Thus, GRDP can reduce HDI, which Fauzi's (2021) research supports.
Conclusion

This research aims to identify and interpret the influence of Islamic bank financing, Poverty, and Gross Regional Domestic Product (GRDP) on the Human Development Index using Random Effect Model (REM) as an estimator.

The estimation results of Islamic bank financing on the Human Development Index show that it has a significant positive effect on increasing the Human Development Index. The increase in Islamic bank financing causes an increase in the production of goods and services, thus causing the exchange of goods and services, which is an economic activity that can increase welfare. The increase in economic activity shows an increase in the people's standard of living, where the standard of living is one of the elements of the Human Development Index.

Poverty estimation results on the Human Development Index have a significant adverse effect on the Human Development Index. Poverty causes low work productivity in the population. Low productivity results in low income. This can decrease the HDI level, where income can affect HDI. Low productivity happens because the poor spend more energy and time fulfilling their basic needs. Unfortunately, they are not interested in involving themselves in activities except for their essential needs.

The Gross Regional Domestic Product (GRDP) estimation results on the Human Development Index (HDI) have a significant negative effect. An increase in GRDP can positively affect HDI because output per capita can affect economic growth. However, GDRP in this study was able to reduce HDI. The negative effect is due to instability and a decrease in the value of GDRP.

Reference


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