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Determinants of Islamic Human Development Index (IHDI): Evidence from Jambi Province

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ABSTRACT

This study aims to analyze the effects of education expenditure, health expenditure, and the poverty rate on the Islamic Human Development Index (IHDI) in Jambi Province. IHDI measures human development based on maqāṣid al-shariah, covering material, moral, and spiritual aspects.
This study uses a quantitative approach with annual secondary data from 2013 to 2022. Multiple linear regression analysis was conducted using EViews 14.

The results show that education expenditure has a positive and significant effect on IHDI, while health expenditure has a negative and significant effect. The poverty rate has a negative but insignificant effect. Simultaneously, the three variables significantly affect IHDI, with an adjusted R-squared value of 0.867337.

1. INTRODUCTION

Human development is a fundamental indicator in measuring the success of economic and social progress in a region. Conventionally, human development is assessed using the Human Development Index (HDI), which focuses on material aspects such as income, education, and health. However, this approach is considered insufficient to capture the holistic concept of welfare, particularly in the context

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of Islamic values, which emphasize both material and spiritual dimensions of human life (Bimo et al., 2025).

These findings highlight the importance of improving the effectiveness of education and health expenditure and strengthening poverty alleviation policies to support human development based on maqāṣid al-shariah in Jambi Province.

In Islamic perspective, human development is not solely oriented toward wealth accumulation but also toward achieving falah (worldly and hereafter well-being). This concept is rooted in maqāṣid al-shariah, which includes the protection of religion (hifz al-din), life (hifz al-nafs), intellect (hifz al-'aql), lineage (hifz al-nasl), and wealth (hifz al-mal). These principles serve as the foundation for designing development policies that uphold justice, balance, and social welfare (Dedhymardianto, 2023).

As a response to the limitations of HDI, scholars have developed the Islamic Human Development Index (IHDI) as an alternative measure that integrates conventional development indicators with Islamic values. IHDI provides a more comprehensive framework for assessing human welfare by incorporating moral and spiritual dimensions alongside material aspects (Arno et al., 2024).

The development of IHDI in Jambi Province during the period 2013–2022 shows a fluctuating trend, indicating that Islamic-based human development in the region has not yet achieved stable progress. This condition suggests the presence of several influencing factors, including government fiscal policies and socio-economic conditions. In this study, key factors considered include government expenditure in the education and health sectors, as well as the poverty rate (Gusmardi et al., 2023).

Government expenditure on education plays a crucial role in improving human capital through increased access to education, better facilities, and enhanced quality of teaching. Similarly, health sector expenditure contributes to improving life expectancy and productivity. On the other hand, poverty remains a significant challenge that can hinder the achievement of optimal human development.

Based on these conditions, this study aims to analyze the determinants of Islamic Human Development Index (IHDI) in Jambi Province, focusing on the role of education expenditure, health expenditure, and poverty. The findings are expected to provide insights for policymakers in designing more effective strategies to enhance human development based on maqāṣid al-shariah (Mardika Febrianto, 2023).

Table 1. IHDI, Education Expenditure, Health Expenditure, and Poverty in Jambi Province, 2013–2022

Year	IHDI JAMBI PROVINCE	Total Education Expenditure (Billion Rp)	Total Health Expenditure (Billion Rp)	Percentage of Poor Population (%)
2013	37,05	575,36	336,49	8,07
2014	55,68	588,27	332,52	8,39
2015	65,68	647,18	361,91	8,86
2016	72.66	652,14	383,30	8,41
2017	51,97	617,15	420,90	8,19
2018	69,01	653,38	472,01	7,92
2019	61,84	636,27	487,78	7,60
2020	64,15	618,11	436,25	7,58

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2021	49,64	627,17	572,13	7,90
2022	43,69	633,18	633,08	7,90

Source *(Amri, 2024), Ministry of Finance of the Republic of Indonesia and BPS-Statistics of Jambi Province*

2. LITERATURE REVIEW

2.1 ISLAMIC HUMAN DEVELOPMENT INDEX (IHDI)

The Islamic Human Development Index (IHDI) is an alternative measure of human development that integrates material and spiritual dimensions based on Islamic values. Unlike the conventional Human Development Index (HDI), which primarily focuses on income, education, and health, IHDI provides a more holistic assessment by considering moral and spiritual aspects of human welfare Its measurement is based on the five dimensions of maqāṣid al-shariah, namely the protection of religion (hifz al-din), life (hifz al-nafs), intellect (hifz al-'aql), lineage (hifz al-nasl), and wealth (hifz al-mal) (Arno et al., 2024).

IHDI aims to provide a more comprehensive measurement of welfare by emphasizing not only economic achievements but also moral and social well-being. In this context, development is expected to lead to falah, which refers to success in both worldly life and the hereafter. Therefore, IHDI is considered more appropriate for measuring development in regions with strong Islamic values, as it reflects balanced human welfare (Rukiah et al., 2019).

2.2 EDUCATION EXPENDITURE

Government expenditure in the education sector is a crucial factor in improving human capital and enhancing the quality of human resources. Education plays a significant role in increasing knowledge, skills, and productivity, which ultimately contribute to human development. Increased allocation of education spending is expected to improve access to education, infrastructure, and the quality of teaching and learning processes (Wahyuni & Amar, 2023).

According to human capital theory, investment in education has a long-term impact on economic and social development. In the context of IHDI, education expenditure contributes to the protection of intellect (hifz al-'aql), which is one of the essential elements of maqāṣid al-shariah. Therefore, higher education spending is expected to have a positive influence on the Islamic Human Development Index (Heru & Subiyantoro, 2024).

2.3 HEALTH EXPENDITURE

Health expenditure represents government efforts to improve public health services, including access to healthcare facilities, medical personnel, and health infrastructure. Improved health conditions lead to higher life expectancy, increased productivity, and better quality of life (Simamora et al., 2024).

In the framework of maqāṣid al-shariah, health is closely related to the protection of life (hifz al-nafs). Adequate health expenditure ensures that individuals can live healthy and productive lives, which is essential for achieving overall human development. Thus, increased government spending in the health sector is expected to positively affect IHDI (Antonius et al., 2024).

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2.4 POVERTY

Poverty is a condition in which individuals are unable to fulfill their basic needs, including food, education, and healthcare. High poverty levels can hinder access to essential services and reduce the quality of human life, thereby negatively affecting human development.

From an Islamic perspective, poverty alleviation is a fundamental objective in achieving social justice and welfare. Islam emphasizes equitable wealth distribution and encourages social responsibility through instruments such as zakat, infaq, and sadaqah. Poverty is also related to the protection of wealth (hifz al-mal), as insufficient income limits individuals' ability to sustain a decent standard of living (Mardika Febrianto, 2023).

Empirical studies generally show that poverty has a negative relationship with human development. Therefore, reducing poverty is essential for improving the Islamic Human Development Index and achieving balanced welfare in society (Cakrawala & Dalimunthe, 2023).

2.5 PREVIOUS STUDIES

Previous studies have examined the determinants of human development from both conventional and Islamic perspectives. Several studies found that government expenditure in the education sector has a positive and significant effect on human development, as it improves human capital quality through better access to education and learning facilities. Similarly, health expenditure has been shown to contribute positively to human development by increasing life expectancy and overall well-being (Purbasari & Hazami, 2023).

On the other hand, poverty has consistently been found to have a negative impact on human development. High poverty levels limit access to education, healthcare, and other essential services, thereby reducing the quality of life and slowing down development progress.

However, studies specifically analyzing the determinants of the Islamic Human Development Index (IHDI), particularly at the regional level such as Jambi Province, remain limited. Most previous research focuses on the Human Development Index (HDI) or examines variables separately without incorporating Islamic perspectives. Therefore, this study attempts to fill the research gap by analyzing the influence of education expenditure, health expenditure, and poverty on IHDI in Jambi Province during the 2013–2022 period (Rafsanjani, 2020).

3. METHODOLOGY

3.1 Research design

This study employs a quantitative research approach to analyze the effect of education expenditure, health expenditure, and poverty on the Islamic Human Development Index (IHDI) in Jambi Province. A quantitative approach is appropriate as this study aims to examine the relationships and causal effects among variables using statistical analysis.

This research uses a time series design covering the period from 2013 to 2022. The data used in this study are secondary data obtained from relevant institutions such as the Central Statistics Agency (BPS) and other official sources.

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In this study, IHDI is used as the dependent variable, while education expenditure, health expenditure, and poverty rate are used as independent variables. These variables are selected based on their theoretical relevance within both conventional development theory and the framework of maqāṣid al-shariah.

3.2 MODEL SPECIFICATION

To examine the relationship between variables, the model in this study is specified as follows:

$$IHDI = \beta_0 + \beta_1 EDU + \beta_2 HEALTH + \beta_3 POV + \varepsilon$$

Where:

- IHDI = Islamic Human Development Index
- EDU = Education Expenditure
- HEALTH = Health Expenditure
- POV = Poverty Rate
- β0 = Constant
- β1, β2, β3 = Regression coefficients
- ε = Error term

This model is developed based on previous empirical studies, including**,** with adjustments to reflect the regional characteristics of Jambi Province.

3.3 CONCEPTUAL FRAMEWORK

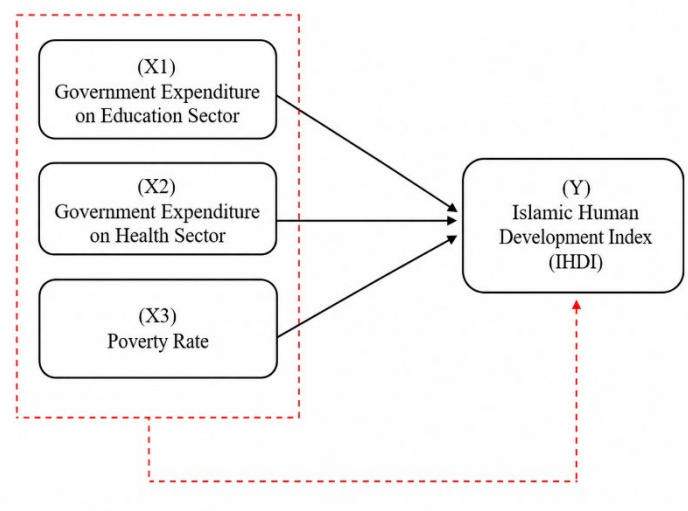


FIGURE DESCRIPTION :

X_1 = Education Expenditure, X_2 = Health Expenditure, X_3 = Poverty, Y = Islamic Human Development Index (IHDI)Solid arrows (→) represent the partial effects of education expenditure, health expenditure, and poverty on the Islamic Human Development Index (IHDI).

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Dashed lines (—) represent the simultaneous effect of education expenditure, health expenditure, and poverty on the Islamic Human Development Index (IHDI).

3.4 DATA SOURCE AND TYPE

This study uses secondary data in the form of annual time series data from 2013 to 2022. The data were obtained from official institutions, including:

1. Central Statistics Agency (BPS)
2. Regional Government Financial Reports (APBD)
3. Other relevant official publications

The variables used in this study consist of:

- Islamic Human Development Index (IHDI) as the dependent variable
- Education expenditure as an indicator of government spending in the education sector
- Health expenditure as an indicator of government spending in the health sector
- Poverty rate as an indicator of socio-economic conditions

All data are measured annually and processed using EViews 14 software.

3.5 Operational Definition of Variables

Islamic Human Development Index (IHDI)

Islamic Human Development Index (IHDI) is used as a measure of human development based on Islamic principles in Jambi Province during the 2013–2022 period. IHDI reflects both material and spiritual aspects of welfare, incorporating the concept of maqāṣid al-shariah. This variable serves as the dependent variable in this study (Arno et al., 2024).

The Islamic Human Development Index (IHDI) is used as the dependent variable to measure human development in Jambi Province based on the framework of maqāṣid al-sharī‘ah. In this study, the IHDI follows the measurement framework developed by (Amri, 2024), which incorporates the five essential dimensions of maqāṣid al-sharī‘ah: protection of religion (hifz al-dīn), protection of life (hifz al-nafs), protection of intellect (hifz al-‘aql), protection of lineage (hifz al-nasl), and protection of wealth (hifz al-māl).

For the context of Jambi Province, these five dimensions are represented by indicators derived from available provincial-level secondary data. Hifz al-dīn reflects the religious dimension of human well-being; hifz al-nafs reflects health and life-related conditions; hifz al-‘aql reflects educational conditions; hifz al-nasl reflects family and social conditions; and hifz al-māl reflects economic welfare. The indicators are processed according to the measurement framework of (Amri, 2024) to obtain a composite IHDI value.

Accordingly, the IHDI variable in this study is not represented by a single indicator but by a composite index reflecting the five dimensions of maqāṣid al-sharī‘ah. The annual IHDI values for Jambi Province from 2013 to 2022 were obtained from the IHDI measurement reported by (Amri, 2024) and were used as the dependent variable in the regression model.

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In the context of government policy, the allocation of public expenditure can also be understood through specific dimensions of maqāṣid al-shariah. Government expenditure on education is conceptually associated with hifz al-'aql (protection of intellect) because education develops knowledge, intellectual capacity, and human skills. Government expenditure on health is associated with hifz al-nafs (protection of life) because the provision of healthcare services and health infrastructure contributes to the preservation and improvement of human life. Meanwhile, poverty alleviation is closely related to hifz al-mal (protection of wealth), as reducing poverty strengthens individuals' ability to fulfill basic needs and maintain adequate economic well-being. Therefore, education expenditure, health expenditure, and poverty can be linked to specific maqāṣid al-shariah dimensions that collectively contribute to the achievement of Islamic human development.

Education Expenditure

According to human capital theory, investment in education has a long-term impact on economic and social development. From the perspective of maqāṣid al-shariah, education expenditure is specifically associated with hifz al-'aql (protection of intellect). Government allocation to education can support access to schooling, educational infrastructure, learning resources, and teacher quality, which contribute to the development and preservation of individuals' intellectual capacity. Therefore, education expenditure represents not only an investment in human capital but also a form of public policy that supports the achievement of hifz al-'aql. Higher and more effectively allocated education expenditure is consequently expected to contribute positively to the Islamic Human Development Index (IHDI) (Wahyuni & Amar, 2023).

Health Expenditure

Health expenditure represents government spending in the health sector, including the provision of healthcare services, medical facilities, and public health programs. This variable is used to measure the government's effort to improve public health and quality of life, and it serves as an independent variable in this study (Maulinaa & Andriyania, 2020).

Poverty

From the perspective of maqāṣid al-shariah, poverty is closely associated with hifz al-mal (protection of wealth) because economic well-being is essential for individuals to fulfill their basic needs and maintain a dignified standard of living. High poverty levels indicate limited access to economic resources and may restrict individuals' ability to obtain food, education, healthcare, and other necessities. Therefore, poverty alleviation can be viewed as part of the effort to realize hifz al-mal by strengthening individuals' economic security and reducing material deprivation. A lower poverty rate is consequently expected to contribute to improved human development and higher IHDI. (Mardika Febrianto, 2023).

3.6 Data Analysis Method

This study employs a quantitative approach using secondary time-series data for the period 2013–2022 in Jambi Province. The analysis is conducted to examine the effect of government expenditure in the education sector, government expenditure in the health sector, and poverty level on the Islamic Human Development Index (IHDI). The data are analyzed using multiple linear regression with the assistance of EViews 14.

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Unit Root Test

Since this study uses annual time-series data covering the period 2013–2022, unit root tests are conducted before estimating the multiple linear regression model to examine the stationarity properties of the variables and reduce the risk of spurious regression. The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are employed to examine the stationarity of all variables, namely the Islamic Human Development Index (IHDI), education expenditure, health expenditure, and poverty rate.

The null hypothesis of both the ADF and PP tests states that the variable contains a unit root, indicating non-stationarity. The null hypothesis is rejected when the probability value is less than 0.05, indicating that the variable is stationary. The ADF test is conducted using automatic lag selection based on the Akaike Information Criterion (AIC), while the PP test uses the Newey-West automatic bandwidth with the Bartlett kernel. The unit root tests are performed using EViews 14.

Multiple Linear Regression Analysis

Multiple linear regression analysis is used to determine the effect of independent variables on the dependent variable. The independent variables in this study are:

- Government expenditure on education sector (X_1)
- Government expenditure on health sector (X_2)
- Poverty rate (X_3)

While the dependent variable is:

- Islamic Human Development Index (IHDI) (Y)

The regression model is formulated as follows:

$$IHDI = \beta_0 + \beta_1 EDU + \beta_2 HEALTH + \beta_3 POV + \varepsilon$$

Where:

IHDI = Islamic Human Development Index
EDU = Education Expenditure
HEALTH = Health Expenditure
POV = Poverty Rate
β_0 = Constant
β_1, β_2, β_3 = Regression coefficients
ε = Error term

3.7 CLASSICAL ASSUMPTION TESTS

To ensure that the regression model is valid and unbiased, several classical assumption tests are conducted:

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Normality Test

The normality test is conducted using the Jarque-Bera (JB) method to determine whether the residuals are normally distributed. If the probability value is greater than 0.05, the residuals are considered normally distributed.

Multicollinearity Test

The multicollinearity test is performed using the Variance Inflation Factor (VIF). If the VIF value is less than 10, it indicates that there is no multicollinearity among independent variables.

Heteroscedasticity Test

The heteroscedasticity test is conducted using the Breusch-Pagan-Godfrey test. If the probability value is greater than 0.05, it indicates that there is no heteroscedasticity problem.

Autocorrelation Test

The autocorrelation test is carried out using the Breusch-Godfrey Serial Correlation LM Test. If the probability value is greater than 0.05, it indicates that there is no autocorrelation in the model.

3.8 HYPOTHESIS TESTING

t-Test (Partial Test)

The t-test is used to determine the effect of each independent variable individually on the dependent variable. If the probability value is less than 0.05, the variable has a significant effect.

F-Test (Simultaneous Test)

The F-test is used to determine whether all independent variables simultaneously affect the dependent variable. If the probability value is less than 0.05, the variables jointly have a significant effect.

Coefficient of Determination (R^2)

The coefficient of determination (R^2) is used to measure how much variation in the dependent variable can be explained by the independent variables.

3.9 Research Hypotheses

Based on the theoretical framework and previous studies, the hypotheses proposed in this study are as follows:

1. Government expenditure in the education sector has a significant effect on the Islamic Human Development Index (IHDI) in Jambi Province.
2. Government expenditure in the health sector has a significant effect on the Islamic Human Development Index (IHDI) in Jambi Province.
3. Poverty level has a significant effect on the Islamic Human Development Index (IHDI) in Jambi Province.

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4. Government expenditure in the education sector, government expenditure in the health sector, and poverty level simultaneously have a significant effect on the Islamic Human Development Index (IHDI) in Jambi Province.

4. RESULTS

4.1 UNIT ROOT TEST RESULTS

Before conducting the multiple linear regression analysis, unit root tests were performed to examine the stationarity properties of the time-series variables. The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were applied to the Islamic Human Development Index (IHDI), education expenditure, health expenditure, and poverty rate. The tests were conducted at the level and first-difference forms using a constant term. The results are presented in Table 2.

Table 2. Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) Unit Root Test Results

Variable	ADF Level Prob.	PP Level Prob.	ADF First Difference Prob.	PP First Difference Prob.	Conclusion
IHDI	0.9817	0.9914	0.1677	0.1677	Non-stationary
Education Expenditure	0.0039	0.0038	0.0328	0.0518	Stationary at level
Health Expenditure	0.9601	0.9992	0.0366	0.0233	Stationary at first difference
Poverty Rate	0.6722	0.6722	0.2274	0.2365	Non-stationary

Source: Processed EViews 14 Output

The unit root test results indicate that the variables exhibit different stationarity properties. For IHDI, the ADF test at the level produces a probability value of 0.9817, while the PP test produces a probability value of 0.9914. Both values are greater than 0.05, indicating that IHDI is non-stationary at the level. After first differencing, the ADF and PP tests produce probability values of 0.1677 and 0.1677, respectively. Since both values remain greater than 0.05, IHDI is not found to be stationary at the first-difference level based on the reported tests.

Education expenditure is stationary at the level. The ADF and PP tests produce probability values of 0.0039 and 0.0038, respectively, both of which are below the 0.05 significance level. Therefore, the null hypothesis of a unit root is rejected and education expenditure is classified as stationary at level, or I(0).

For health expenditure, the ADF and PP tests at the level produce probability values of 0.9601 and 0.9992, respectively, indicating non-stationarity at level. After first differencing, the probability values decrease to 0.0366 for the ADF test and 0.0233 for the PP test. Both values are below 0.05, indicating that health expenditure becomes stationary at the first difference, or I(1).

For the poverty rate, the ADF and PP tests at the level produce probability values of 0.6722 and 0.6722, respectively. Both values are greater than 0.05, indicating that the poverty rate is non-stationary at level. At the first difference, the ADF and PP probability values are 0.2274 and 0.2365, respectively. Since both values remain above 0.05, the poverty rate is not found to be stationary after first differencing based on the reported tests.

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Overall, the ADF and PP tests demonstrate that the variables have different time-series properties. Education expenditure is stationary at level, while health expenditure becomes stationary after first differencing. Meanwhile, IHDI and the poverty rate remain non-stationary after first differencing. These findings are taken into consideration when interpreting the subsequent regression results. In addition, the results should be interpreted cautiously because the study covers only ten annual observations, which may affect the reliability and statistical power of conventional time-series tests.

4.2 MULTIPLE LINEAR REGRESSION RESULTS

The multiple linear regression analysis was conducted to examine the effect of government expenditure in the education sector, government expenditure in the health sector, and poverty level on the Islamic Human Development Index (IHDI) in Jambi Province. The estimation results are presented in Table 3.

Table 3. Multiple Linear Regression Results

Variable	Coefficient	t-statistic	Probability
Education Expenditure	0.000461	2.954700	0.0255
Health Expenditure	- 0.000327	- 6.662283	0.0006
Poverty Rate	- 4.519746	- 1.077707	0.3226

Source: Processed EViews 14 Output

Based on Table 3, government expenditure in the education sector and health sector have a significant effect on IHDI, while poverty level does not show a significant effect.

4.3 INTERPRETATION OF RESULTS

The regression results indicate that government expenditure in the education sector has a positive and statistically significant effect on IHDI, with a coefficient of 0.000461 and a probability value of 0.0255, which is lower than the 5% significance level. This finding indicates that higher education expenditure is associated with improvements in human development based on Islamic values.

Government expenditure in the health sector has a negative and statistically significant effect on IHDI, with a coefficient of -0.000327 and a probability value of 0.0006. This result indicates that increases in health expenditure during the observed period were associated with decreases in IHDI after controlling for education expenditure and the poverty rate. This negative relationship may reflect differences in expenditure composition, implementation effectiveness, reactive health spending, unequal access to healthcare services, or the time required for health expenditure to influence human development outcomes.

Meanwhile, the poverty rate has a negative but statistically insignificant effect on IHDI, as indicated by a coefficient of -4.519746 and a probability value of 0.3226. Since the probability value is greater than 0.05, the null hypothesis cannot be rejected. This finding suggests that changes in the poverty rate did not have a statistically significant direct effect on IHDI during the study period.

The regression findings should be interpreted together with the unit root test results. Since IHDI and the poverty rate remain non-stationary after first differencing based on the reported ADF and PP tests, the estimated OLS relationships should be interpreted cautiously. The results primarily describe the

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statistical associations observed in the sample and should not be interpreted as definitive evidence of long-run causal relationships.

4.4 ROBUSTNESS CHECK USING ONE-YEAR LAGGED HEALTH EXPENDITURE

To further investigate the unexpected negative relationship between health expenditure and IHDI, an additional regression specification was estimated by introducing a one-year lag for health expenditure. The estimated model is specified as follows:

$$IHDI = \beta_0 + \beta_1 EDU + \beta_2 HEALTH(-1) + \beta_3 POV + \varepsilon$$

The results show that one-year lagged health expenditure has a negative and statistically significant coefficient of -0.1543, with a probability value of 0.0377. Education expenditure has a positive but statistically insignificant coefficient of 0.1000 (p = 0.4798), while the poverty rate has a negative but statistically insignificant coefficient of -9.9335 (p = 0.3833).

The lagged model produces an R-squared value of 0.7119 and an adjusted R-squared value of 0.5390. The F-statistic is 4.1177 with a probability value of 0.0808. The introduction of the one-year lag reduces the number of observations to nine, leaving five residual degrees of freedom. Therefore, this specification is treated as an additional robustness analysis rather than a replacement for the main regression model.

Importantly, the negative relationship between health expenditure and IHDI remains after introducing a one-year lag. This suggests that the unexpected negative association cannot be explained solely by the possibility that health expenditure requires one year to affect human development outcomes. Other factors, including expenditure composition, implementation effectiveness, reactive government spending, omitted variables, and the small number of observations, may also contribute to the observed relationship.

Tabel 4. Robustness Test Using One-Year Lagged Health Expenditure

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	146.7045	115.4371	1.2709	0.2597
Education Expenditure	0.1000	0.1310	0.7632	0.4798
Health Expenditure (-1)	-0.1543	0.0550	-2.8060	**0.0377**
Poverty Rate	-9.9335	10.3987	-0.9553	0.3833
R-squared	0.7119			
Adjusted R-squared	0.5390			
F-statistic	4.1177			
Prob(F-statistic)	0.0808			
Durbin-Watson	2.5445			
Observations	9			

4.5 CLASSICAL ASSUMPTION TESTS

To ensure the validity of the regression model, several classical assumption tests were conducted. The results are presented in Table 5.

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Table 5. Classical Assumption Test Results

Test	Probability	Conclusion
Normality Test (Jarque-Bera)	0.160730	Normal Distribution
Autocorrelation Test	0.0550	No Autocorrelation
Heteroscedasticity Test	0.9292	Homoscedastic
Multicollinearity (VIF)	1.384166, 2.013010, 1.705742.	No Multicollinearity

Source: Processed EViews 14 Output

Based on Table 5, all classical assumption tests indicate that the regression model satisfies the required assumptions. The residuals are normally distributed, there is no autocorrelation problem, the variance of residuals is constant, and no multicollinearity is detected among independent variables. Therefore, the model is considered reliable for further analysis.

4.6 HYPOTHESIS TESTING

1. t-Test (Partial Test)

The t-test results indicate that government expenditure in the education sector has a positive and statistically significant effect on IHDI, while government expenditure in the health sector has a negative and statistically significant effect on IHDI. In contrast, the poverty rate has a negative but statistically insignificant effect on IHDI.

2. F-Test (Simultaneous Test)

Table 6. F-Test Results

F-Statistic	Probability	Conclusion
20.61363	0.001462	Significant

Source: Processed Eviews 14 Output

Based on Table 6, the probability value of 0.001462 is lower than 0.05. Therefore, the independent variables, namely education expenditure, health expenditure, and poverty rate, jointly have a statistically significant relationship with IHDI in the estimated model.

3.Coefficient of Determination (R^2)

Table 7. Coefficient of Determination Results

R^2	Adjusted R^2	Interpretation
0.911558	0.867337	Strong Model

Source: Processed Eviews 14 Output

The R^2 value of 0.911558 indicates that approximately 91.16% of the variation in IHDI is explained by education expenditure, health expenditure, and poverty rate in the estimated model. The adjusted R^2 value of 0.867337 indicates that approximately 86.73% of the variation in IHDI is explained by the

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independent variables after adjusting for the number of explanatory variables and observations, while the remaining 13.27% is associated with other factors outside the model.

5. DISCUSSION

5.1 THE EFFECT OF GOVERNMENT EXPENDITURE ON EDUCATION ON IHDI

The results show that government expenditure in the education sector has a positive and statistically significant effect on the Islamic Human Development Index (IHDI) in Jambi Province, with a coefficient of 0.000461 and a probability value of 0.0255.

Theoretically, this finding is consistent with human capital theory, which considers education expenditure a long-term investment in improving individuals' knowledge, skills, productivity, and quality of life. However, the benefits of education investment may require time before they are fully reflected in human development outcomes (Heru & Subiyantoro, 2024) .

The positive coefficient indicates that higher education expenditure is associated with an increase in IHDI. This finding is consistent with (Zidny Nafi Hasbi, 2023), who found that government expenditure in the education sector had a positive and significant effect on IHDI in Indonesia. Education expenditure can improve human development by supporting educational facilities, teacher competence, learning resources, and access to education.

Nevertheless, the effectiveness of education expenditure depends not only on the amount allocated but also on its distribution, management, and targeting. Therefore, the government should ensure that education expenditure is directed toward programs that directly improve educational access and quality throughout Jambi Province (Nuhisa et al., 2025).

5.2 THE EFFECT OF GOVERNMENT EXPENDITURE ON HEALTH ON IHDI

The results show that government expenditure in the health sector has a negative and statistically significant effect on IHDI, with a coefficient of −0.000327 and a probability value of 0.0006.

Theoretically, this finding differs from human development theory, which suggests that increased health expenditure should improve access to healthcare services, increase life expectancy, reduce mortality, and enhance labour productivity (Susanto, 2025). In the framework of maqāṣid al-shariah, health expenditure is also related to the protection of life or hifz al-nafs.

The negative coefficient indicates that increases in health expenditure during the observed period were associated with decreases in IHDI after controlling for education expenditure and the poverty rate. This relationship may reflect differences in expenditure composition, implementation effectiveness, unequal access to healthcare services, or the time required for health expenditure to affect human development outcomes. Increased health expenditure may also occur as a government response to greater health problems rather than as an indication that public health conditions have already improved (Fernando et al., 2025).

This finding is consistent with (Purbasari & Hazami, 2023) and (PUTRI, 2020) in terms of statistical significance because both studies found that health expenditure significantly affected IHDI. However, their studies reported a positive relationship, whereas the present study found a negative relationship.

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These differences may result from variations in the study period, regional characteristics, data structure, and the effectiveness of health expenditure management.

Therefore, the negative result should not be interpreted as evidence that health expenditure is inherently harmful to human development. Instead, it highlights the need to improve the effectiveness, distribution, and targeting of health expenditure so that its benefits can be reflected more strongly in IHDI.

5.3 THE EFFECT OF POVERTY RATE ON IHDI

The results show that the poverty rate has a negative but statistically insignificant effect on IHDI, with a coefficient of −4.519746 and a probability value of 0.3226.

The negative coefficient is consistent with human development theory, which explains that poverty can limit people's ability to meet basic needs and restrict their access to education, healthcare, adequate housing, and economic opportunities. These limitations may reduce the quality of human resources and hinder human development (Alvia et al., 2024)

However, the insignificant probability value indicates that changes in the poverty rate did not significantly explain changes in IHDI in Jambi Province during the study period. This finding is consistent with (Viana, 2022) and (Rafsanjani, 2020), who found that poverty had a negative but statistically insignificant effect on human development.

The insignificant effect may indicate that other factors played a more dominant role in determining IHDI. Government social assistance, subsidies, education programs, healthcare services, and other public policies may have reduced the direct effect of poverty on human development. In addition, IHDI includes material, social, moral, and spiritual dimensions; therefore, changes in poverty may not directly affect all dimensions of the index (Rukiah et al., 2019).

Although poverty does not have a statistically significant effect in this study, sustainable poverty alleviation policies remain important because poverty can restrict access to basic services and hinder the achievement of welfare based on maqāṣid al-shariah.

5.4 SIMULTANEOUS EFFECT OF VARIABLES ON IHDI

The results of the F-test show that government expenditure on education, health, and poverty rate simultaneously have a significant effect on IHDI.

This indicates that human development is influenced by a combination of factors, including education, health, and socio-economic conditions. These variables interact with each other in shaping the overall level of human development.

Therefore, integrated and well-coordinated policies are required to improve IHDI, rather than focusing on a single factor.

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6. CONCLUSION

This study aims to analyze the effect of government expenditure on education, government expenditure on health, and poverty rate on the Islamic Human Development Index (IHDI) in Jambi Province.

Based on the results of the analysis, several conclusions can be drawn:

1. Government expenditure on education has a positive and significant effect on IHDI, indicating that increased education spending improves human development.
2. Government expenditure on health has a negative and significant effect on IHDI, suggesting inefficiencies or delayed impacts of health investment.
3. Poverty rate has a negative but insignificant effect on IHDI, indicating that its influence is not statistically strong during the study period.

Simultaneously, all independent variables significantly influence IHDI, showing that human development is shaped by multiple interconnected factors.

6.1 LIMITATIONS AND FUTURE RESEARCH

This study has several limitations:

1. The study only includes three independent variables, while other important factors such as employment, inflation, and infrastructure are not included.
2. The research focuses only on Jambi Province, limiting generalization to other regions.
3. The use of annual data may not capture short-term fluctuations.
4. The study uses annual time-series data for Jambi Province from 2013 to 2022, resulting in only ten observations. With three independent variables and an intercept, the model has six residual degrees of freedom ($10 - 3 - 1 = 6$). Therefore, the results should be interpreted cautiously because the small sample size may reduce statistical power and make the estimated coefficients sensitive to annual changes. Future research is encouraged to use a longer observation period or panel data at the regency/city level to obtain more observations and more robust estimates.

6.2 RECOMMENDATIONS

Based on the findings, several recommendations are proposed:

1. The government should increase and optimize education spending to improve human resource quality.
2. Health expenditure should be managed more effectively to ensure its impact on human development.
3. Poverty reduction programs should be strengthened to improve overall welfare.
4. Policy synergy between education, health, and poverty alleviation is necessary.

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6.3 POLICY IMPLICATIONS

Based on the findings of this study, several policy implications can be formulated to improve the Islamic Human Development Index (IHDI) in Jambi Province. First, the government needs to enhance the efficiency of public spending, particularly in the health sector, to ensure that budget allocations produce optimal outcomes in improving community well-being. Second, increasing investment in the education sector is essential, as education has been proven to significantly contribute to human development quality. Third, strengthening poverty alleviation programs is necessary to improve overall welfare and reduce socio-economic disparities. Finally, the government should implement integrated development policies that synergize the education, health, and social sectors, as these aspects are interconnected and collectively influence the level of human development.

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8. CONFLICT OF INTEREST

The author declares no conflict of interest.

9. AUTHORS' CONTRIBUTIONS

The author was responsible for the entire research process, including conceptualization, data collection, methodology, data analysis, interpretation of results, and manuscript writing.

10. DECLARATION OF GENERATIVE AI IN THE WRITING PROCESS

Artificial Intelligence (AI) tools were used in a limited capacity during the preparation of this manuscript for language refinement, grammar assistance, structural organisation, and academic writing support. However, all conceptual development, interpretation of findings, analysis, and final academic decisions remain entirely the responsibility of the author.

The author carefully reviewed and validated all generated content to ensure academic integrity, originality, and compliance with scholarly research standards.

11. DATA AVAILABILITY/SUPPLEMENTARY MATERIALS

The data supporting the findings of this study are available from the corresponding author upon reasonable request. Due to confidentiality and ethical considerations involving parents, teachers, and educational institutions associated with autism related educational experiences, raw interview transcripts and identifiable institutional information are not publicly available.

12. ETHICS STATEMENT

This study was conducted in accordance with appropriate academic and ethical research standards involving human participants. Ethical approval was obtained from the relevant institutional authority before the data collection process began. Participation in the study was entirely voluntary, and all participants were informed regarding the objectives of the study, confidentiality procedures, and their right to withdraw from participation at any stage without penalty. Information consent was obtained

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from all participants before surveys and interviews were conducted. To protect participant privacy, all names of individuals, schools, and institutions were anonymised throughout the research process. All collected data were stored securely and used strictly for academic purposes only.

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