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The Relationship of Islamic Human Development Index (I-HDI), ICT, and Governance to Poverty

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Abstract

Poverty is the biggest problem facing the world today. Poverty is more than just a statistic; it directly impacts the lives of millions globally. This study aims to examine the relationship between the Islamic Human Development Index (I-HDI), ICT, and Governance on poverty in D-8 countries in 2012-2022. D-8 countries are an association of developing Islamic countries in the world. In this study, the I-HDI value uses the Simple Weighted Index (SWI) by using a percentage of 20 on 5 dimensions of the index adjusted to the maqashid Sharia indicators. This research data uses 330 panel data and the research sample is selected through purposive sampling method in D-8 organization member countries. Based on this sampling method, 5 countries were selected as the object of this study, namely Indonesia, Malaysia, Egypt, Pakistan and Turkey. This research is processed through the Fixed Effect Model regression model. The regression model is used to test the relationship of 5 independent variables, namely I-HDI, Access to Information, Government Effectiveness (GE), Regulatory Quality (RQ), and Control of Corruption (CC) on the dependent variable, namely poverty. The results show that I-HDI, ICT, and Regulatory Quality (RQ) significantly reduce poverty. This study implies that D-8 member countries should use I-HDI as a measure of human development, maximize access to information technology, and improve regulatory quality to eradicate poverty.

Keywords: *I-HDI, ICT, Governance, Poverty*

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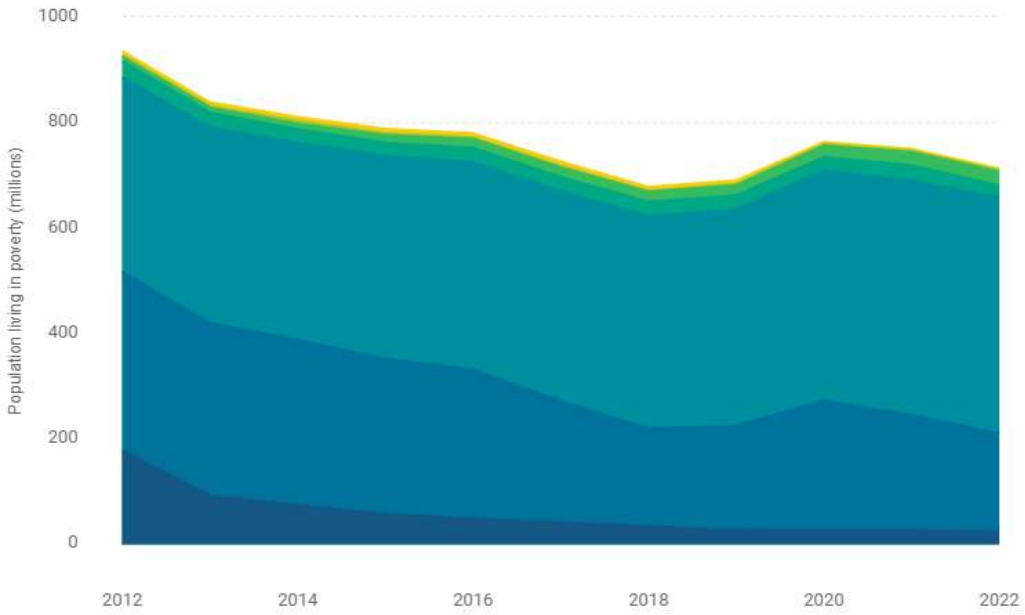
1. INTRODUCTION

It remains one of the most pressing global challenges, affecting millions across the world (World Bank, 2022). It is not just limited to statistical data but has far-reaching impacts across multiple sectors (Liu et al., 2023). Reducing poverty is a key aspect of fostering economic and social growth (COMCEC, 2021). Poverty continues to be a widespread issue in many countries, including those that are part of the D-8 Organization for Economic Cooperation.

The D-8 is a multilateral organization formed by developing countries with a primary focus on economic collaboration. The D-8 member countries include Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan, and Turkey. Established through the Istanbul Declaration during a high-level conference in Turkey on June 15, 1997, the D-8 aims to improve its members' standing in the global economy, create new trade opportunities, enhance their role in international decision-making, and raise living standards.

According to the latest poverty line data, the number of poor people globally continues to rise. Figure 1 shows that approximately 712 million people live on less than $2.15 per day, which is considered the extreme poverty line (Worldbank, 2024). Figure 1 compares the percentage of the population living below the poverty line in D-8 member countries with the global average.

Figure 1. World Poverty Headcount



Source: Worldbank, 2024

Continuous efforts to reduce poverty levels have reached a critical point and align with the globally agreed Sustainable Development Goals (SDGs). The complexity of poverty requires a multidimensional approach that considers economic, social, political, and cultural factors (Sachs, 2020). Research by UNDP & OPHI (2022); United Nations (2020); and Widiastuti et al. (2022) highlights that poverty issues often stem from the quality of human development, productivity, and institutional strength within governments. Additionally, Ruhyana & Essa (2020) and Sharma et al. (2024) emphasize that access to technology and information in daily life may also be crucial in reducing poverty levels.

The assessment of development quality has evolved over time, with changes in the indicators used for measurement. Mahri et al. (2021) provide a straightforward explanation of the evolution of human development indicators. Morris (1979) introduced the Physical Quality of Life Index (PQLI) as a metric for assessing development performance. This index uses three key indicators: literacy rates, infant mortality rates, and life expectancy. Later, in 1972, the Happiness Index was introduced. Bhutan's King Jigme Singye Wangchuck described the Happiness Index as an indicator of socio-economic development, grounded in Buddhist spiritual values. The index focuses on four main pillars: 1) sustainable development, 2) preservation of local cultural values, 3) environmental conservation, and 4) good governance.

In 1990, the United Nations Development Programme (UNDP) introduced the Human Development Index (HDI), which became a globally recognized measurement of development. The HDI has undergone six revisions to better reflect the evolving global and national contexts. However, according to Rama & Yusuf (2019), the HDI still falls short in providing a comprehensive picture, particularly in Muslim-majority countries. This gap in development measurement methods has created opportunities for alternative approaches. According to the 2023 State of the Global Islamic Economy Report, five of the eight D-8 countries are ranked among the top 15 nations with the highest Global Islamic Economy Indicator (GIEI) scores.

Refining the dimensions, indicators, and formulas used, Jatmiko & Azizon (2022) and Widiastuti et al. (2022) argue that the Islamic Human Development Index (I-HDI) is more comprehensive than HDI and better suited for measuring development in Muslim-majority countries.

Table 1. Comparison of HDI and I-HDI Models

HDI				**I-HDI**				
Dimensions	Health	Education	Income	Diin (Religion)	Nafs (Life)	Aql (Education)	Nasl (Descent)	Maal (Wealth)
Indicator	Life Expectancy	Mean Years of Schooling and Expected Years of Schooling	GDP Percapita	Intentional Homicide	Life Expectancy	Primary School Enrollment	Mortality Rate	GDP Percapita
Formula	HDI = IHealth x I Education x I Income			I-HDI= (20% * din index) + (20% * nafs index) + (20% * aql index) + (20% * nasl index) + (20% * mal index)				

Source: UNDP, (2021); Widiastuti et al. (2022)

One important tool for reducing global poverty is information and communication technology (Sharma et al., 2024). ICT plays a crucial role in fostering economic growth, generating jobs, and improving quality of life (World Bank, 2023). Its impact has been profound across various sectors. For developing countries, ICT offers a potential leap toward achieving optimal development outcomes (Oshota, 2019). Nevertheless, the persistent digital divide remains a significant challenge, closely linked to disparities in development. Billions of people still lack internet access, and digital advancement is unevenly distributed. Accurately assessing digital progress, especially in developing nations, is crucial for guiding policymakers and the private sector to effectively bridge the digital gap.

In addition to ICT, governance quality is another key factor in reducing poverty. Research by Abaidoo & Agyapong (2022); Akobeng (2020); Awdeh & Jomaa (2024); and Widiastuti et al. (2022) highlights the significance of robust institutions and sound policies in promoting economic development and reducing poverty. However, Khalid et al. (2022) found no significant relationship between government governance and poverty reduction. Earlier studies on poverty in ASEAN, such as those by Nurbaiti (2020), Ahmad et al. (2019), and Nasution et al. (2021), primarily focused on conventional economic indicators like HDI, FDI, inflation, and GDP.

To date, little research has combined multidimensional socio-economic poverty indicators with information technology and governance quality. This study fills that gap by utilizing Islamic development indicators (maqashid sharia) alongside internet access and governance quality to analyze poverty reduction efforts in D-8 countries. Moreover, it offers a more current analysis, covering an 11-year period starting from 2012, the year when D-8 member countries signed a charter to address poverty.

Literature Review

Islamic Human Development Index (I-HDI)

I-HDI represents a novel approach to measuring human development from an Islamic perspective. Unlike traditional measurement tools, this model emphasizes not only material well-being but also moral and spiritual dimensions. It gauges human welfare by assessing the fulfilment of basic needs (maslahah), enabling individuals to attain happiness in both this world and the hereafter. Central to Islamic thought, the I-HDI is grounded in the maqashid sharia framework, originally formulated by Imam Syaitibi, which emphasizes the protection of five essential aspects: 1) Hifdzu Ad-Dien (religion), 2) Hifdzu Nafs (life), 3) Hifdzu Aql (intellect), 4) Hifdzu Nasl (lineage), and 5) Hifdzu Maal (wealth). These represent core human needs, and the balanced fulfilment of all five is crucial for achieving true happiness in life. This framework was later integrated into Islamic development theory by scholars such as Ibn Khaldun and Umer Chapra (Mahri et al., 2021).

The religious aspect, in particular, serves as a unique measure of a meaningful life, unmeasurable by conventional indicators but rather through one's adherence to spiritual truth (Reza et al., 2020). Studies by Widiastuti et al. (2022) and Jatmiko & Azizon (2022) support the idea that the I-HDI has a significant and negative correlation with poverty. Their findings suggest that religious principles contribute positively to human well-being, foster employment, and help

reduce poverty levels. Based on this, the first hypothesis of this research is stated as follows:

H1: I-HDI negatively impacts poverty.

Information and Communication Technology (ICT)

Information technology emerged in the 1990s and has continued to evolve at a rapid pace. ICT plays a significant role in fostering national economic growth, particularly in developing countries (Ismail & Rasool, 2021). In recent years, IT has gained prominence as a key tool in poverty reduction efforts. One strategy for alleviating poverty involves integrating information communication technology (ICT) across various economic sectors, such as enhancing agricultural production and practices through ICT to boost productivity (Mebawondu et al., 2021).

The broad adoption of ICT has become a major factor contributing to both economic and social progress. As the fastest-growing technology globally, ICT has been recognized by the United Nations Development Program as an essential resource in the fight against poverty. ICT provides developing nations with unique opportunities to address critical development goals, such as eradicating poverty, improving basic healthcare, and expanding access to education. Countries that effectively leverage ICT can anticipate enhanced economic growth, better human welfare, and improved democratic governance. Kriz & Qureshi (2009) and Dinc (2016) also emphasize ICT's contribution to economic progress.

Many nations have implemented various strategies to promote the use of ICT in communities through development projects. As a result, ICT is regarded as a crucial enabler and one of the key components in achieving national development objectives.

H2: Information and Communication Technology has a negative effect on poverty.

Governance

High-quality institutions play a crucial role in addressing income inequality and alleviating poverty in a country (Ouechtati, 2022). Institutional or governmental quality is a key factor influencing the extent of poverty (Aracil & Gonzalo, 2022). Institutions can be categorized as either extractive or inclusive, based on their structure and functioning. According to the World Bank, six indicators are commonly used to evaluate governance, collectively known as the Good Governance Index. These indicators include Voice and Accountability (VA), Political Stability and Absence of Violence (PV), Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL), and Control of Corruption (CC) (Kaufmann et al., 2010). Effective institutions have been shown to improve income distribution and reduce poverty levels (Ullah et al., 2021).

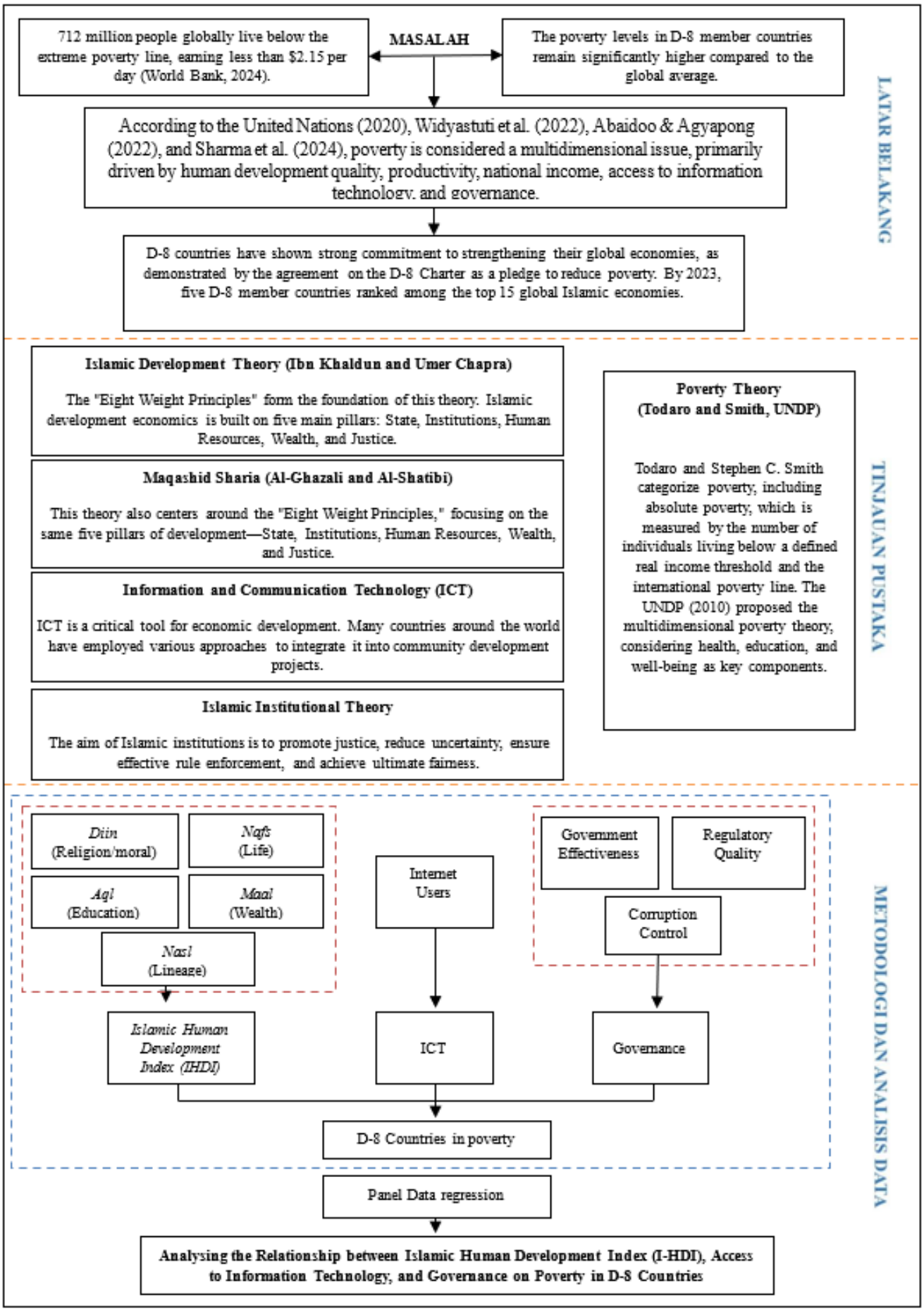
Previous studies, such as (Akobeng, 2020), have found that enhancing governance quality directly contributes to solving poverty-related issues. Based on these insights, the following hypotheses are proposed in this research.

H3: Government Effectiveness (GE) negatively affects poverty.

H4: Regulatory Quality (RQ) negatively affects poverty.

H5: Control of Corruption (CC) negatively affects poverty.

Figure 2. Research conceptual framework



2. METHOD

The sample for this study was selected using a purposive sampling approach, with the following criteria: (1) membership in the D-8 group, (2) utilization of Islamic economic instruments, and (3) ranking among the top 15 global leaders in Islamic economies. Based on these criteria, Indonesia, Malaysia, Egypt, Pakistan, and Türkiye were chosen as the sample countries. The research includes 330 panel data points covering the period from 2012 to 2022, which are analyzed using a regression model. The I-HDI model is adapted from Widiastuti et al. (2022), with all proxy indicators following Widiastuti's framework.

Table 2 I-HDI Model Framework

Dimensions	Diin (Religion)	Nafs (Life)	Aql (Education)	Nasl (Descent)	Maal (Wealth)
Indicator	Intentional Homicide	Life Expectancy	Primary School Enrollment	Mortality Rate/1000	GDP Per capita
Formulas	I-HDI= (20% * din index) + (20% * nafs index) + (20% * aql index) + (20% * nasl index) + (20% * mal index)				

Source: (Widiastuti et al., 2022)

Determination of the I-HDI value is calculated using the Simple Weighted Index (SWI) method, using a percentage of 20 in each dimension to produce a result of 100%. Following are the details:

I-HDI = (20% * din index) + (20% * nafs index) + (20% * aql index) + (20%) * nasl index) + (20% * mal index)

The following is the regression model used in this research:

PVTit = αit + β1IHDIit + β2TIKit + β3GEit + β4RQit + β5CCit + εit , Where:

α = Constant

β1 = Regression coefficient for the IHDI independent variable

β2 = Regression coefficient for the independent variable ICT

β3 = Regression coefficient for the independent variable Government Effectiveness

β4 = Regression coefficient for the independent variable Regulatory Quality

β5 = Regression coefficient for the independent variable Corruption Control

PVTit = Total poverty in area i in period t

IHDIit = IHDI region i in period t

GEit = Government effectiveness of region i in period t

RQit = Regulatory Quality of region i in period

CCit = Corruption Control in area i in period t

εit = Noise coefficient / random error

Table 3. Operational Definition of Variable

No	Variable	Reference	Indicator	Definition	Source
1.	*Islamic Human Development Index*	*The nexus between Islamic social finance, quality of human resources, governance, and poverty* Tika Widiastuti et.al (2022)	*Diin*	The diin index dimension is measured from *the Intentional Homicedes* (IH) value from 2012 to 2022, using the following formula: *(Original value of IH- minimum value of IH) / (max value of IH- minimum value of IH)*	• SESRIC • Worldbank • Our World in Data • Homicide Monitor • Department of Statistics Malaysia • Indonesian Central Statistics Agency • SDGs.id
			Nafs	The dimensions of the nafs index are measured by the life expectancy (LE) value from 2012 to 2022 using the following formula: *(Original value of LE minimum value of LE) / (max value of LE - minimum value of LE)*	
			Nasl	The dimensions of the nafs index are measured from the mortality rate (MR) value from 2012 to 2022 using the following formula: *(Original value of MR minimum value of MR) / (max value of MR - minimum value of MR)*	
			Aql	The dimensions of the nafs index are measured from the elementary school participation scores (PSE) from 2012 to 2022 using the following formula: *(Original value of PSE minimum value of PSE) / (max value of PSE - minimum value of PSE)*	
			Mal	The dimensions of the nafs index are measured from the GNP value from 2012 to 2022 using the following formula: *(Original value of GNP minimum value of GNP) / (max value of GNP - minimum value of GNP)*	

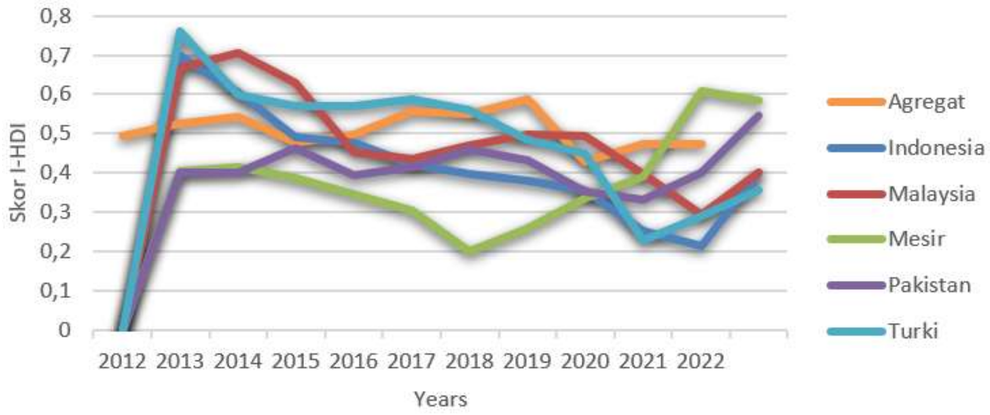
2.	Information and Communication Technology (ICT)	*Financial inclusion and poverty reduction in Nigeria: the role of information and communication technology (ICT)* (Olaoye & Zerihun, 2023)	Internet Access	The proportion of households in coverage that have Internet access to the total households in coverage, expressed as a percentage.	• SESRIC
3.	Governance	*Policy Research Working Papers: The Worldwide Governance Indicators* *World Bank* (2010)	GE, RQ, CC	World Governance *Indicators* (WGI) are measured in 2 ways, • units standard normal from -2.5 until 2.5 And percentile experience rankings start from 0 (lowest) until 100 (highest) in between all countries in all over world. In study This, units Which standard is used Because room scope study only focused on the layout manage government. • Mark every indicator arrange manage calculated with using method: $ID[\theta_i, y_{1i}, \ldots, y_{ki}] = \left(1 + \sum_{k=1}^{K} \sigma_k^{-2}\right)^{-1/2}$	• *The Worldwide Governance Indicators* (2024)

3. RESULT AND DISCUSSION

3.1. Result

I-HDI represents a new approach to calculating the Human Development Index, grounded in the Maqashid Sharia principles introduced by Al-Ghazali and further refined by Umer Chapra's Islamic economic development theory (Mahri et al., 2021). This framework centers on the welfare of human beings, focusing on safeguarding five essential aspects of Maqashid Sharia.

Figure 3. Islamic Human Development Index Value of D-8 Countries



Source: UNDP (2024)

Figure 3 illustrates the I-HDI trends for the five selected countries from 2012 to 2022. During this period, all five D-8 nations have maintained relatively low average I-HDI values, generally below 0.5. Among these countries, Turkey stands out with the highest and most consistent I-HDI average at 0.495, reflecting relatively better I-HDI performance compared to others. In contrast, Egypt ranks lowest, with an average score of 0.38, below the aggregate I-HDI value for the five D-8 countries, which is 0.44 for the 2012-2022 period. These figures indicate that, overall, the I-HDI in the D-8 countries remains at a low level, suggesting that economic development, as evaluated from an Islamic perspective, is still limited.

Table 4. Descriptive Statistics

	Y	X1	X2	X3	X4	X5
Mean	3.330545	0.443809	48.66042	-0.029744	-0.119755	-0.395998
Median	2.730000	0.414760	47.69060	-0.118562	-0.031376	-0.467645
Maximum	12.66000	0.758931	97.39860	1.146777	0.799231	0.396689
Minimum	0.510000	0.200693	8.100000	-0.797585	-0.892876	-1.068792
Std. Dev.	2.882749	0.127985	26.24705	0.610698	0.540726	0.393188

Source: Processed by the author using Eviews 12 (2024)

According to Table 2, the dependent variable (Y) in this study, which measures poverty in the five D-8 countries, ranges from a minimum of 0.51% to a maximum of 12.66%. This indicates that, among the countries analyzed, the lowest poverty rate was 0.51%, while the highest reached 12.66%. The average poverty rate is 3.33%, with a median value of 2.73% and a standard deviation of 2.88. The relatively low standard deviation compared to the mean suggests that the poverty data is not highly varied.

3.2. Discussion

The process of determining the most appropriate regression model for the panel data in this research involved three key tests: the Chow test, Hausman test, and Lagrange test. These tests were conducted to select the optimal model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The Chow test compares CEM and FEM, and if the probability value is below 0.05, FEM is preferred. Based on Table 5, with a probability value of 0.00, the Fixed Effect Model (FEM) was chosen. The following section presents the Chow test results from this study.

Table 5. Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.
Cross-section F	37.997081	(2,15)
Cross-section Chi-square	41.463138	2

Source: Processed by the author using Eviews 12 (2024)

The Fixed Effect Model (FEM) was identified as the most suitable approach. This model assumes that the characteristics of the objects and regression coefficients remain consistent over time. Based on the regression results, it was determined that the regression equation used in this research was:

Y = 1.75– 2.87X1 – 0.07X2 +2.61X3 – 0.65X4 - 1.52X5

Table 6. Fixed Effect Model Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.756998	0.678987	2.587675	0.0192
X1	-2.877908	0.688567	-4.179562	0.0006
X2	-0.073368	0.010419	-7.041869	0.0000
X3	2.619913	0.927168	2.825716	0.0117
X4	-0.658095	0.189152	-3.479184	0.0029
X5	-1.521102	1.329056	-1.144498	0.2683

Source: Processed by the author using Eviews 12 (2024)

Regarding the independent variables X1 (I-HDI), X2 (Information and Communication Technology), and X3, the coefficient for X1 (I-HDI) is -2.87. This implies that a 1% increase in I-HDI leads to a 2.87% reduction in poverty. For variable X2, which represents access to information technology, the coefficient is 0.07, meaning that a 1% rise in access to information technology reduces poverty by 7%. Governance is represented by variables X3, X4, and X5. For X3, which stands for Government Effectiveness (GE), the coefficient is +2.61, indicating that a 1% increase in GE results in a 2.61% rise in poverty. For X4, Regulatory Quality (RQ), the coefficient is -0.65, signifying that a 1% improvement in regulatory quality reduces poverty by 0.65%. Lastly, variable X5, Control of Corruption (CC), has a coefficient of -1.52, showing that a 1% improvement in corruption control leads to a 1.52% decrease in poverty.

4. CONCLUSION

4.1. Summary

The analysis and discussion presented in the previous chapter lead to the following conclusions about the relationship between the Islamic Human Development Index (I-HDI), Information Access, and Governance on Poverty in D-8 countries from 2007 to 2021:

a. The variables I-HDI, Information Access, Voice and Accountability (VA), and Control of Corruption (CC) have a significant negative effect on poverty in the D-8 during the 2007-2021 period. This indicates that as I-HDI, Information Access, VA, and CC increase, poverty levels decrease.
b. The variables Political Stability and Absence of Violence (PV), Government Effectiveness (GE), and Regulatory Quality (RQ) do not have a significant impact on poverty in the D-8 during the

same period. This implies that these factors did not significantly influence poverty levels.

c. The Rule of Law (RL) variable has a significant positive effect on poverty, indicating that higher RL values are associated with an increase in poverty in the D-8 countries between 2007 and 2021.
d. When considered simultaneously, I-HDI, Information Access, and Governance have a significant negative effect on poverty, meaning that better I-HDI, improved access to information, and stronger governance lead to reduced poverty levels in the D-8 countries.

4.2. Limitations

This research faces certain limitations related to the scope of the objects studied and the availability of data. These limitations include:

a. The study only covers 5 out of the 8 D-8 member countries. The remaining 3 countries were excluded due to insufficient data for the required variables. This omission limits the completeness of the findings, as they do not fully represent the conditions across all D-8 nations.
b. The Information Technology variable is relatively new and was measured primarily by the number of household internet users in developing countries, which restricts its scope and depth of analysis.

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