



Research article

The nexus between Islamic social finance, quality of human resource, governance, and poverty

Tika Widiastuti^{a,*}, Imron Mawardi^a, Siti Zulaikha^a, Sri Herianingrum^a, Anidah Robani^b, Muhammad Ubaidillah Al Mustofa^c, Nikmatul Atiya^a^a Faculty of Economics and Business, Universitas Airlangga, Indonesia^b Institute of Technology Management and Entrepreneurship, Universiti Teknikal Malaysia Melaka (UTeM), Malaysia^c Department of Development Studies, Institute of Technology Sepuluh Nopember, Indonesia

ARTICLE INFO

Keywords:

Governance
Human development
Macroeconomics
No poverty
Islamic social finance

ABSTRACT

This research aims to examine the effects of the Islamic social finance (zakat), the Islamic Human Development Index (IHDI), and the quality of governance on poverty alleviation in 39 Organization of Islamic Cooperation (OIC) member countries from 2007 to 2020. This study uses a fixed effect model to analyze the relationship between variables. The findings show that the Islamic human development index, as a proxy for the quality of human resources, supports the reduction of poverty in OIC countries. Furthermore, the zakat, voice and accountability, and trade openness have a negative and significant relationship with poverty. The quality of governance, population, inflation, and exchange rate, on the other hand, has no significant effect on the poverty rate. These findings can be used as the foundation for state government as the policymaker to solve poverty. The uniqueness of this study is the application of the modified human development index based on the five Islamic objectives and empirically investigates its impact on poverty.

1. Introduction

Poverty is a socio economic issue caused by various factors. According to Ha et al. [1] the causes of poverty are the lack of capital and production tools, quality labor, job opportunities, and motivation to develop. One of the reasons for the high poverty rate in OIC countries is the low quality of human resources. This is reflected in the high rate of unemployment, which reached 7.1 percent in 2020 and remained higher than the global average [2]. Furthermore, some OIC countries have government systems that do not provide citizens with social protection. For example, only 25 OIC countries accounted for 15–20% of education spending in 2018, compared to the previous 27 countries in 2000 [3]. As a result, these countries' levels of human capital, productivity, and national income remain low.

Human quality is the second instrument capable of aiding in poverty alleviation. The Human Development Index (HDI) is frequently used to assess the level of human quality [4, 5, 6]. From an Islamic perspective, human quality is measured using the Islamic Human Development Index (IHDI). IHDI is a tool for measuring human development based on Islamic principles in order to achieve prosperity [7]. The IHDI is a

comprehensive measurement based on the five dimensions of Islamic objectives (*Maqashid Sharia*) [8, 9, 10, 11, 12]. Human development is a variable that can be considered, as the higher quality of human resources may provide a significant influence on reducing poverty levels [13, 14, 15, 16, 17].

Several instruments can be used to reduce the level of poverty. Zakat is an Islamic social finance instrument that serves as social security in the resolution of socioeconomic issues, one of which is poverty. Zakat is a socioeconomic means of reducing poverty and providing resources to the poor and underprivileged [18, 19]. Zakat also plays an important role in addressing the issues of poverty [20, 21, 22, 23].

Institutional quality is the next instrument that influences the level of poverty. Law, individual rights, and the quality of government regulations and services for an institution or country are all examples of institutional quality [24]. World Governance Indicators, International Country Risk Guide, and Economic Freedom are several methods for measuring institutional quality. Excellent institutional quality can improve the income inequality problems and reduce poverty in a country [25, 26, 27].

Previous researchers have conducted research on the factors that influence poverty in OIC countries, including Amuda & Embi [28], Haneef

* Corresponding author.

E-mail address: tika.widiastuti@feb.unair.ac.id (T. Widiastuti).

et al. [29], Shaikh [30], and Shirazi et al. [31]. The study focuses on factors that can have an impact on poverty alleviation in OIC countries. However, no research has been conducted that considers the aspects of *Maqashid Sharia* on poverty alleviation in OIC countries.

Using the panel data approach, this study aims to empirically examine the effect of the IHDI, zakat rate, and institutional quality on poverty levels in OIC member countries. The concept of IHDI was established by several studies, including Herianingrum et al. [14], Anto [15], and Rama & Yusuf [17]. These previous studies attempted to develop the human development index in accordance with Islamic objectives, but they did not put it to the test empirically. This study develops the previous research by applying IHDI to empirical studies and examines its impact to poverty levels in several OIC member countries. This research concentrates on the conceptual aspects of index construction and creates some modifications to examine the index's utility in resolving a societal problem analytically.

According to the findings of this study, the quality of human development, as measured by the IHDI, is the most influential factor in reducing poverty levels in OIC countries. Furthermore, the zakat rate, voice and accountability, and trade openness are all variables that have a negative and significant effect on the level of poverty. The robustness test was performed in this study by modifying the model with variations of the independent variables. Human resources based on *Maqashid Sharia*, zakat rate, voice and accountability, and trade openness had a consistent and statistically significant impact to reduce poverty levels in OIC countries. The results of the robustness tests show that these variables are robust and consistent across all models.

This study's findings are important for considerable reasons. To begin, the findings of this study support the theory that *Maqashid Sharia*-based human resource development has a significant impact on poverty reduction. Second, the study's findings support the policy recommendations for advancing human development in OIC countries in accordance with *Maqashid Sharia*. Thirdly, these findings make policy recommendations for optimizing the zakat rate, voice and accountability, and trade openness in order to alleviate poverty in OIC countries.

The format for writing this article is divided into several sections. Section 2 the literature review. Section 3 explains the methods. Section 4 describes the result. Section 5 explain the analysis of the result. The conclusions and policy recommendation are discussed in Section 6.

2. Literature review

2.1. Quality of human resource

The view of development today is broader than in the past. Development entails more than just raising national income [32, 33]. The concept of development is viewed as a multidimensional process that accommodates changes in social structures, community attitudes, and national institutions [11]. The current development paradigm emphasizes human resource development. Human development is defined by the expansion of capabilities, with humans serving as both the means and the end goal of all development processes [34]. The HDI is one tool for assessing human development. This is derived from the UNDP index of 1994. HDI is a four-indicator composite index. Each component reflects the three main dimensions of human development: longevity, knowledge, and access to resources. However, this measurement is not perfect. Several studies have improved and updated the HDI concept and dimensions in order to obtain concepts and dimensions that can represent a complete picture of human development [35].

One of the criticisms leveled at HDI is that it is divorced from ethics and morals [36], so several recent studies have attempted to construct an index that incorporates religion and ethics. One of the outcomes is the IHDI or Islamic Human Development Index.

The IHDI is a tool used to assess human development from the perspective of Islam based on *Maqashid Sharia*. IHDI is based on the five dimensions, namely faith (*din*), self (*nafs*), intellect (*aql*), posterity (*nasl*),

and wealth (*mal*) [8, 9, 11]. IHDI measures the achievement of human welfare by meeting basic needs, including physical and moral requirements, so that humans can live happily in this world and in the next life (achieve *falah*) [7]. IHDI is a more comprehensive measuring instrument than HDI because it employs the five-dimensional *Maqashid Sharia* to evaluate human development [11].

Human resources formation is frequently cited as a driving force behind regional economic growth and income growth [37, 38]. According to Farazmand & Omid [5] globalization and urbanization have a significant positive impact on income inequality, whereas the HDI has a significant negative impact on income inequality in the countries included. Another study discovered that human development has a negative and significant effect on poverty [13, 14, 15, 16, 17]. The better quality of human development shows the quality of education in the community is getting better. A good education has a big effect on reducing the poverty levels of a community by increasing opportunities in getting better jobs and higher incomes [15]. In addition, Olopade et al. [16] stated that improved quality of education and health affects the living standards and community welfare. Based on previous research findings, the following hypothesis was developed for this study:

H1. The IHDI has a statistically significant negative effect on poverty levels in OIC countries.

2.2. Zakat and economics

Zakat is a financial obligation that every Muslim must fulfill [39, 40, 41]. Zakat is an Islamic social finance instrument that serves as a means of distributing wealth within the community [42]. According to Powell [43], zakat is the greatest and most equitable redistribution system. Zakat is an important tool in the Islamic socio-economic framework. The primary goal of Zakat is to distribute the wealth of the rich to the poor in order to achieve socio-economic justice, increase economic growth, and reduce poverty and inequality in society [23, 44]. Several empirical studies have been conducted to investigate the role of zakat in the economy of society. For example, Azam et al. [45] conducted empirical research which put the state of Pakistan as the object and discovered that zakat can improve people's welfare in the country.

According to Bouanani & Belhadj [21] zakat can significantly reduce poverty in Tunisia. Besides, Jedidia & Guerbouj [46] discovered that zakat can stimulate economic growth in a sample of 8 Muslim countries during the years of 2004 until 2017. This occurs because zakat funds are used to increase consumption, investment, or government spending in order to stimulate economic growth. Similarly, Aziz et al. [47] stated that zakat is a mandatory instrument that equips individuals to meet the needs of their recipients. Furthermore, that study confirmed and validated that zakat has a negative impact on multidimensional poverty and demonstrates a significant contribution to Pakistan's achievement of the Sustainable Development Goals (SDGs). Furthermore, Shaukat & Zhu [48] discovered that zakat had a statistically significant positive impact on FDI and domestic investment, as well as decreased corruption. Based on these various descriptions, it is possible to conclude that, both theoretically and empirically, zakat can have a positive impact on the economy of a country and society as well as its social conditions. Based on the findings of previous studies, the following hypothesis was developed for this study:

H2. The zakat rate has a statistically significant negative effect on poverty levels in OIC countries.

2.3. Quality of governance

Law, individual rights, and the quality of government regulations and services in a country or institution are all examples of institutional quality [24]. Institutional quality can be assessed using six International Country Risk Guide (ICRG) variables: voice and accountability, political stability and absence of violence/terrorism, government effectiveness,

regulatory quality, rule of law, and control of corruption. Furthermore, in a previous study conducted by Chong & Calderón [49], the institutional quality variable was measured using the composite index of government corruption, bureaucratic quality, law and order tradition, risk of expropriation, and contract repudiation. In addition, Shaukat & Zhu [48] utilized indicators of political insecurity, institutional strength, corruption, government consumption, ease of doing business, and rule of law as proxies for institutional quality.

One of the most important factors influencing the socio-economic life of a community is the quality of its institutions. A country with strict contract laws, property rights, and investor protection rules, as well as good social norms, is expected to have a good financial system, as the rules and norms are reflected in the formulation of various financial rules and regulations [50]. According to Deyshappriya [51] who investigated the impact of macroeconomics on income inequality in 33 Asian countries using the dynamic panel data analysis method, one of the indicators of institutional quality, namely political instability as proxied by political risk, can have a positive impact on the level of income inequality in Indonesia. Furthermore, the good institutional quality can help reduce poverty in a country [25, 26, 27]. This will increase financial inclusion and improve the economy of the community in general. It would as well have an effect on lowering the level of poverty in the community [25]. The following hypothesis was developed in this study based on the findings of previous studies:

H3. Institutional quality has a statistically significant negative impact on poverty levels.

2.4. Macroeconomics

Macroeconomic variables are indicators that influence the overall economic level of society. Poverty levels have been shown to be influenced by several macroeconomic variables. The first is Consumer Price Index (CPI), which serves as a proxy for inflation. Inflation is defined as an increase in an economy's overall price level [52]. In data processing, the relationship between CPI and poverty is characterized by a positive relationship where when inflation increases it will have an impact on increasing the number of poverty [53, 54, 55]. According to Neaime, & Gaysse [53], in fact the inflation has negative impact to the community. When inflation rises, it raises the prices of goods and services, reducing people's purchasing power and lowering individuals' real income. Then it has an impact on the community's increasing poverty.

The second variable is trade openness. Trade openness, also known as open trade, is a type of international trade that expands faster than regional trade within a country [56, 57]. Trade openness raises per capita income by providing numerous opportunities for business development. As a result, economic changes brought about by freer trade reform can generate financial incentives that primarily encourage foreign investors to expand their businesses. Trade openness has a negative and significant relationship with the level of poverty in the community, implying that the greater a country's trade openness with other countries, the greater the country's poverty reduction [26,58]. This happens because the higher trade openness indicates better international economic cooperation and impacts on increasing state income, which is ultimately influencing poverty level reduction [58].

The third variable is exchange rates. The exchange rate is calculated by multiplying the foreign currency price of one unit of domestic currency by the domestic price level multiplied by the foreign price level [59]. According to Apergis & Cooray [60], through remittances, real exchange rate depreciations have a greater positive impact on poverty. Furthermore, the exchange rate can have an impact on a country's macroeconomics by lowering export competitiveness and increasing the transaction deficit. In addition, Ajaz et al. [61] stated that depreciation of the local currency raises the cost of imported inputs then, as a result, raises the production costs of importing firms.

The population is a fundamental issue in a country's development because uncontrolled population growth has a negative impact on

economic growth. Previous studies examining the relationship between population and poverty yielded conflicting results. The population's influence on the economy is highly dependent on the population's quality [62]. Population growth is one of the factors causing poverty problems [53,63]. Population growth that is not supported by better human qualities has the potential to widen the gap between the rich and the poor, making financial and economic inclusion a more difficult goal to achieve. Furthermore, population growth can have a positive relationship with poverty if it hinders economic development, which means that population growth cannot increase production, so it can reduce the need for consumption of production output [62]. Based on the findings of previous studies, the following hypothesis was developed for this study.

H4. The Consumer Price Index has a statistically positive and significant effect on poverty levels.

H5. Trade openness has a statistically negative and significant effect on poverty levels.

H6. The exchange rate has a statistically positive and significant effect on poverty levels.

H7. The number of populations has a statistically positive and significant effect on poverty levels.

2.5. Poverty rate

Poverty is a complex situation that can be studied from a variety of perspectives, including cultural, social, and historical [23]. Hunger and malnutrition, limited access to education and other basic services, social discrimination and exclusion, and a lack of participation in decision-making are all examples of poverty manifestations [64]. Poverty has been a major challenge and a serious issue, particularly in developing countries [65]. Poverty is defined as the number of identified poor who are unable to obtain a specified threshold level of income (so-called poverty line) to maintain basic living standards [66]. According to the World Bank, poverty is the most fundamental limitation of human development's choices and opportunities to live a healthy and creative life, enjoy a decent standard of freedom, have self-respect, and earn the respect of others [67]. Poverty is classified into two types: absolute and relative. According to the World Bank, a household is considered to be in absolute poverty if its daily income is less than the poverty line of \$1.9. Meanwhile, Eurostat employs a relative poverty metric based on "economic distance," which corresponds to an income level of 60% of the median household income [68].

Poverty is defined as a low per capita income, a lack of access to social services such as health care, education, low-calorie consumption, and a shorter life expectancy [69]. Poverty is defined differently in Islam than it is in the West, where it is defined as a lack of wealth, food, or the ability to access a service. Poverty, according to Islam, is defined as living below a sufficient level that can be described as a good human life in a particular time and place. The common poverty level can also be estimated using the *Maqasid Sharia* [47]. Al Ghazali, an Islamic figure, divides poverty into two types: material poverty and spiritual poverty. As a result, the target group can be divided into four categories. First are those who are spiritually and materially impoverished. Second, there are those who are spiritually poor but materially wealthy. Third, those who are spiritually wealthy but materially impoverished; and fourth, those who are spiritually wealthy but materially impoverished [70]. Poverty can be overcome in three ways, according to Sadeq [71]. For starters, it can be reduced by ensuring income growth as well as equal income distribution and opportunities for all. The second is by controlling bad economic practices in the country. Third, corrective measures such as transfer payments can be used.

3. Materials and methods

This study uses panel data to examine the relationship between the IHDI, zakat rate, and institutional quality to poverty in 39 OIC member

countries from 2007 to 2020 (see appendix 1). Furthermore, due to data limitations several OIC member countries are not included in this research sample, see appendix A. Panel data outperforms cross-sectional and time-series data [72]. More data is included in panel data to increase freedom and reduce collinearity between independent variables. Secondary data for this study was obtained from publications of official institutions such as the World Bank, SESRIC, and the Legatum Institute. In this study, the empirical model is used to investigate the effect of IHDI, institutional quality, and macroeconomic variables on poverty in OIC countries as follows in Eq. (1)

$$P_{it} = \alpha + \beta_1 IHDI_{it} + \beta_2 ZR_{it} + \beta_3 IQ_{it} + \beta_4 TO_{it} + \beta_5 ER_{it} + \beta_6 CPI_{it} + \beta_7 POP_{it} + \epsilon_{it} \tag{1}$$

where,

- IHDI: Islamic Human Development Index
- ZR: Zakat Rate
- IQ: Institutional Quality
- TO: Trade Openness
- ER: Rate of Exchange
- CPI: Consumer Price Index
- POP: Population

In this study, 15 empirical models based on the Fixed Effect Model (FEM) are employed. This is done to test the robustness/consistency of the influence of the independent variable to the dependent variable. In addition, the use of 15 models aims to analyze the consistent effect of the Islamic Human Development Index (IHDI) on poverty alleviation. The study's FEM is based on the Chow test, the Hausman test, and the Lagrange multiplier test. The FEM assumes that the (slope) coefficients of the regressors do not vary across individuals or over time. This study analyzes 39 countries in the OIC Countries that have different economies of scale. Thus, apart from being based on the Hausman and the Lagrange multiplier test, the use of FEM aims to minimize interference caused by sample heterogeneity.

Throughout the study, the empirical model is the chosen model that passed the classical assumption test, which includes the heteroscedasticity and multicollinearity tests. The development of the IHDI in this study is based on the five dimensions of *Maqashid Sharia*, namely *din*, *nafs*, *aql*, *nasl*, and *mal*. The development of IHDI occurred through a few stages. First, the indicators for each dimension of *Maqashid Sharia* are determined. The indicators are established through a review of the literature from previous research that has resulted in the creation of the IHDI. Table 1 describes the variables that used in this study.

The next step in the development of the IHDI is indexing using the minimum and maximum value approach. The minimum and maximum values are set to convert indicators expressed in various units into an index ranging from 0 to 1. The formula of the maximum and minimum approximation is as follows in Eq. (2).

$$\text{Indicator index} = (\text{actual value} - \text{minimal value}) / (\text{maximal value} - \text{minimal value}) \tag{2}$$

After indexing the minimum and maximum values of the indicators for each dimension, the IHDI value is calculated by combining the five-dimensional index values. The IHDI value is calculated using the following formula in Eq. (3).

$$IHDI = (20\% * \text{din index}) + (20\% * \text{nafs index}) + (20\% * \text{aql index}) + (20\% * \text{nasl index}) + (20\% * \text{mal index}) \tag{3}$$

This study used the Simple Weighted Index (SWI) method to calculate the IHDI indicator index and the percentage of each dimension. SWI is a method developed by the Center for Strategic Studies of Zakat (Puskas) of the Indonesian Government Zakat Institutions. SWI is a method of taking multiple attributes in which the weights on each predefined dimension are multiplied by the variable weights are then added together. This

study determines the presentation for each dimension that is 20% where the total number of dimensions is 5 to get a percentage of 100%.

The IHDI score ranges from 0 to 1, with a score closer to 1 indicating better human development and a score closer to 0 indicating poor human development. The IHDI in this study is divided into four categories based on the HDI clustering (see Table 2).

Law, individual rights, and the quality of government regulations and services in an institution or country are all examples of institutional quality [24]. In this study, researchers developed an institutional quality index to assess the quality of a country's governance by averaging the average values of six ICRG variables, which include the variables of voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. Some of the previous studies, including Ullah et al. [26], Shan et al. [73], Javaid et al. [74], Kouadio & Gakpa [75], Tang et al. [76], and Trabelsi & Trabelsi [77], have used six ICRG variables as a measure of institutional quality.

The zakat rate and several supporting variables are also used as independent variables in this study. The consumer price index, trade openness, population, and exchange rate are all utilized as supporting variables in this study. Due to the scarcity of data, the zakat rate studied in the research is calculated using estimation [21,48,65,78]. The zakat rate was calculated in this study by estimating the collection of investment zakat funds using the following formula in Eq. (4)

$$\text{Zakat Rate} = 2.5\% * \text{Gross Capital Formation (current US)} \tag{4}$$

The author employs a rate of 2.5% because it is a *zakat maal* rate and refers to a number of prior studies [21,48,65]. Data on the gross capital formation (current US Dollars) were obtained from World Bank publications. Furthermore, in this study, the trade openness variable is proxied by the number of goods and services exported and imported. Meanwhile, the poverty rate is proxied by the poverty rate at the National Poverty Lines guide obtained from the Legatum Prosperity Index data.

4. Results

4.1. Descriptive statistics

The statistical descriptions are presented in Table 3. The 39 OIC countries have an average institutional quality index of 33.31%. The value is below 50%, meaning that OIC countries have poor quality governance. In terms of human development, IHDI has an average value of 0.56, meaning that human development in OIC countries is at the medium level.

4.2. Correlation matrix

The correlation between the variables can be seen in Table 4. Except for the trade openness and zakat rate variables, all independent variables have a correlation value of 0.9. The variables of trade openness and zakat rate have a strong correlation (0.943). If the correlation coefficient is greater than 0.9 [79], multicollinearity problems are almost certainly present, so the two variables are not included in the same model. If one model includes the trade openness variable, the zakat rate variable is not included as an independent variable, and vice versa. As a result, all models are free of multicollinearity issues.

4.3. Regression result

In this study, 15 empirical models based on the Fixed Effect Model (FEM) are employed. The use of 15 models aims to analyze the consistent effect of the Islamic Human Development Index (IHDI) on poverty alleviation. The chosen model that passed the classical assumption test, which includes the heteroscedasticity and multicollinearity tests. The following are the results of the regression in this study. Table 5, Table 6,

Table 1. Research variables.

Variables	Dimension	Indicators	Data	Definition	Sources
Islamic Human Development Index (IHDI)	<i>Din</i>	Morals	Intentional homicides	Total homicides/100.000 population	Legatum Prosperity Index
	<i>Nafs</i>	Life Expectancy	Life expectancy at 60	Based on current mortality rates, the average of expected remaining years of life at the age of 60	Legatum Prosperity Index
	<i>Aql</i>	Access to Educational Institution	Primary enrollment	The proportion of primary-aged children enrolled in primary school	Legatum Prosperity Index
	<i>Nasl</i>	Mortality	Under 5 mortalities	Number of current newborns who will not live to the age of five per 1,000 newborns	Legatum Prosperity Index
	<i>Mal</i>	Wealth Ownership	GDP per capita	GDP total/population	SESRIC
Zakat Rate	-	-	-	2.5% * Gross capital formation (current US)	Author
Institutional Quality Index (IQ)	-	-	Voice and Accountability	The index of voice and accountability summarizes the effect of two factors: military involvement in politics and democratic accountability	ICRG
	-	-	Political Stability and Absence of Violence/Terrorism	This index includes four elements: government stability, internal conflict, external conflict and ethnic tensions	ICRG
	-	-	Government Effectiveness	This index includes an element: Bureaucracy Quality	ICRG
	-	-	Regulatory Quality	This index includes an element: Investment profile	ICRG
	-	-	Rule of Law	This index includes an element: Law and order	ICRG
	-	-	Control of Corruption	This index includes an element: Corruption	ICRG
Consumer Price Index	-	-	-	Annual percentage change in the annual average consumer price index over the previous year's corresponding period	SESRIC
Trade Openness	-	-	-	Imports of Goods and Services + Exports of Goods and Services	Author
Exchange Rate	-	-	-	The annual average value of one US dollar based on monthly values, expressed in national currency units	SESRIC
Population	-	-	-	Population in total	World Development Indicator
Poverty Rate	-	-	Poverty rate at national poverty lines	The proportion of the population that lives below the national poverty line	Legatum Prosperity Index

Source: Authors'

Table 2. IHDI category.

Category	Score
Very high Islamic human development	0.80–1.0
High Islamic human development	0.70–0.79
Medium Islamic human development	0.55–0.7
Low Islamic human development	<0.55

Source: Authors'

and Table 7 show that there is a negative and significant relationship between IHDI, trade openness, voice and accountability, and zakat rate on poverty rate in OIC countries. Positive and significant relationship between regulatory quality and poverty rate. On the other hand, the variables of IQ, exchange rate, CPI, population, political stability and absence of violence/terrorism, government effectiveness, rule of law, and control of corruption have no significant effect.

Table 3. Descriptive statistics.

	P	IHDI	LN ZR	IQ	LN ER	CPI	LN POP	LN TO	VA	PS	GE	RQ	RL	CC
Mean	26.640	0.568	19.697	0.515	3.889	6.390	16.590	24.356	0.509	0.647	0.455	0.616	0.550	0.352
Std. Dev.	15.830	0.179	1.557	0.102	3.044	11.367	1.464	1.473	0.160	0.109	0.136	0.139	0.169	0.116
Min	3.825	0.111	16.352	0.282	-1.309	-100	13.144	21.451	0.170	0.350	0.250	0.270	0.250	0.080
Max	61.700	0.881	22.924	0.743	10.645	163.260	19.427	27.300	0.830	0.890	0.750	0.950	0.830	0.670
Obs	546	546	546	546	542	537	546	546	546	546	503	546	546	546

Note: P: Poverty; IHDI: Islamic Human Development Index; ZR: Zakat Rate; IQ: Institutional Quality Index; ER: Exchange Rate; CPI: Consumer Price Index; POP: Population Growth; TO: Trade Openness; VA: Voice and Accountability; PS: Political Stability and Absence of Violence/Terrorism; GE: Government Effectiveness; RQ: Regulatory Quality; RL: Rule of Law; CC: Control of Corruption. Source: Authors' calculation.

5. Discussion

This study emphasizes the IHDI variable in influencing poverty alleviation. Throughout 15 different models, the IHDI has a consistently significant negative relationship with poverty and has a high coefficient value. Poverty levels in OIC countries are being reduced by consistent improvement of human quality based on *Maqashid Sharia*. Therefore, H2 is accepted. This result are consistent with Ahmad et al. [19], Janjua & Kamal [20], Moyo et al. [21], Olopade et al. [22], and Qurrata & Ramadhani [23]. A higher IHDI score indicates a higher level of quality of the faith, self, intellectual, posterity, and wealth. A higher IHDI can increase the availability of trained human resources while encouraging economic development and growth as well as lowering poverty levels. Furthermore, improved human quality can increase individuals' opportunities to obtain higher-paid jobs [80]. As a result, it promotes household economic growth and has the potential to reduce poverty.

The quality of government that has been altered by the institutional quality index does not significantly affect poverty in OIC countries, as

Table 4. Correlation matrix.

	P	IHDI	LN ZR	IQ	LN ER	CPI	LN POP	LN TO	VA	PS	GE	RQ	RL	CC
P	1.000													
IHDI	-0.780	1.000												
LN ZR	-0.543	0.489	1.000											
IQ	-0.688	0.663	0.257	1.000										
LN ER	0.387	-0.513	-0.076	-0.504	1.000									
CPI	0.232	-0.136	0.032	-0.294	0.092	1.000								
LN POP	0.120	-0.234	0.608	-0.349	0.379	0.161	1.000							
LN TO	-0.620	0.587	0.943	0.392	-0.260	-0.035	0.462	1.000						
VA	-0.378	0.385	0.047	0.666	-0.170	-0.181	-0.278	0.093	1.000					
PS	-0.413	0.403	-0.029	0.729	-0.439	-0.216	-0.485	0.089	0.394	1.000				
GE	-0.549	0.502	0.259	0.623	-0.143	-0.164	-0.158	0.373	0.446	0.194	1.000			
RQ	-0.494	0.389	0.182	0.747	-0.446	-0.246	-0.269	0.298	0.286	0.635	0.273	1.000		
RL	-0.578	0.608	0.293	0.725	-0.601	-0.145	-0.222	0.397	0.218	0.546	0.251	0.520	1.000	
CC	-0.481	0.494	0.301	0.767	-0.311	-0.337	-0.105	0.386	0.460	0.419	0.490	0.501	0.454	1.000

Source: Authors' calculation

seen in Models 1, 2, and 3. This means that H3 is rejected. The institutional quality index is broken down into six variables. However, political stability and the absence of violence/terrorism, government effectiveness, rule of law, and control of corruption have no significant effect. Only the variables of voice and accountability and regulatory quality affect poverty levels statistically. Voice and accountability used to assess the extent to which a country's people can participate in the selection of leaders, freedom of expression, freedom of association, and freedom of the media [81]. According to the findings of this study, the relationship between the variables of voice and accountability and poverty is significantly negative, implying that an increase in citizens' freedom to express their aspirations to the government has an effect on better development outcomes and relatively reduces the country's poverty rate. The findings of this study are consistent with Tebaldi & Mohan [81], Arimah [82], Barkat et al. [83], Behnezhad et al. [84], and Siddique et al. [85].

Regulatory quality has a positive and significant impact on poverty. This finding contradicts with Chong & Calderón [49], Tebaldi & Mohan [81], and Barkat et al. [83]. These found impacts could be supported by a number of factors. First, improving the quality of a country's government in developing and regulating regulations will have an impact on the smaller opportunities for people to earn money in the illegal sector, such as bribery, corruption, and so on [86]. The system will impede business processes in OIC countries, where the majority of OIC countries still rely on illegal business activities. This is consistent with the average level of

corruption control in OIC countries, which is still low and has become a serious problem [87]. Second, the better regulatory quality of a country can exacerbate poverty because foreign investors prefer to invest in countries with poor regulatory quality that can offer regulatory concessions. A country with poor regulatory quality provides a greater opportunity for foreign companies to invest in that country with low taxes [88]. Third, a country's good regulatory quality may not always be able to side with the poor, such as the Indonesian government's establishment of a policy prohibiting the export of used cooking oil.

In OIC countries, the zakat rate has a consistently negative and significant relationship with the poverty rate (see Models 11 to 15). Of the 5 models tested, zakat has a fairly stable coefficient value. This shows that zakat consistently affects poverty alleviation. This demonstrates that higher zakat can reduce poverty in a country and is consistent with H1. These findings are consistent with Abdullah et al. [6], Bouanani, M.; Belhadj [7], Herianingrum et al. [8], Aziz et al. [40], Abdelmawla & Ahmed [89]. Zakat is one of the financial instruments in Islamic economics that can help alleviate poverty by distributing income from the rich to the poor. Efforts to alleviate poverty through the use of zakat can be carried out in a variety of ways. The first is by increasing the poor's productive capacity. Secondly, the entrepreneurial spirit can be cultivated. The third is by leveraging regional and local economic potential to empower the *mustahiq* community [90]. This prohibition applies for several reasons: (1) this prohibition applies when domestic oil supply is scarce and causes prices to continue to soar, therefore the government decides to prohibit the export of used cooking oil to maintain domestic supply of raw materials. However, in improving regulatory quality, the government must analyze the positive and negative impacts. For example, the export of used cooking oil will have a positive impact if the government carries out strict supervision. The positive impact is not only from the economic side but also from the ecological side where used cooking oil can be used as biodiesel.

Trade openness, as a proxy for the number of goods and services imported and exported, has consistently had a significant negative impact on poverty levels in OIC countries (see Models 4, 5, 6, 7, 9, and 10). According to H5, increasing trade openness has an effect on poverty alleviation. These findings are consistent with Aracil [25], Ullah et al. [26], and Singh [58]. Increasing a country's trade openness encourages trade cooperation with other countries. According to Haider et al. [91] trade openness can boost company efficiency. As a result, this has an impact on increasing output, encouraging an increase in people's income, and lowering poverty levels.

Because the exchange rate is incongruent with poverty levels, it is excluded as the main determinant in poverty reduction efforts. This result rejects H6 and is in accordance with Arham et al. [92]. According to

Table 5. Regression result (A).

Variable	M1	M2	M3	M4	M5
IHDI	-23.955*	-25.098*	-21.423*	-26.437***	-23.142***
IQ	-6.779	-8.700	-7.525		
EXCHANGE RATE	-1.525	-0.600	-1.390		-1.5241*
CPI	0.052		0.050	0.039*	0.047*
POPULATION	1.650	0.449		2.507	3.179
TRADE OPENNESS				-1.756*	-2.208**
VA				-18.040***	-16.913***
PS				-8.433	-1.934
GE				-0.901	2.882
RQ				6.443**	
RL				14.068**	10.654*
CC				6.255*	5.702
CONS.	21.822	40.215	47.619***	42.594	45.629

Note: ***, **, and * denote statistical significance at the 0.1%, 1%, and 5% level of significance, respectively. Source: Authors' calculation.

Table 6. Regression result (B).

Variable	M6	M7	M8	M9	M10
IHDI	-22.022***	-17.337**	-29.358*	-21.923***	-17.526**
EXCHANGE RATE	-1.853**	-1.554*	-1.448	-1.038*	-0.881
CPI	0.058**	0.057**	0.067		
POPULATION	4.129*		3.193	3.565	
TRADE OPENNESS	-2.424**	-2.189**		-2.907***	-2.656***
VA	-17.142***	-16.918***	-18.645*	-16.471***	-16.363***
PS	-8.497*	-9.723*	-10.630	-6.918	-7.616
GE	1.964	2.160	1.801	0.741	1.081
RQ	7.644**	6.949**	7.015	6.466**	5.788*
RL	9.995	8.460	13.863	10.837*	9.526
CC	5.837*	6.478*	4.442	5.408	6.028*
CONS.	35.999	96.606***	-4.094	54.179	105.246***

Note: ***, **, and * denote statistical significance at the 0.1%, 1%, and 5% level of significance, respectively. Source: Authors' calculation.

Table 7. Regression result (C).

Variable	M11	M12	M13	M14	M15
IHDI	-17.347**	-17.748**	-12.303*	-18.583**	-17.748**
ZAKAT RATE	-3.519***	-3.852***	-3.547***	-3.302***	-3.852***
EXCHANGE RATE	-1.749**	-0.865	-0.700	-1.417*	-0.865
CPI	0.052**			0.041*	
POPULATION	5.152*	4.510*		4.108*	4.510*
VA	-17.150***	-16.620***	-16.425***	-16.856***	-16.620***
PS	-6.517	-5.492	-6.404	0.426	-5.492
GE	4.108	3.063	3.321	4.959	3.063
RQ	8.156***	7.136**	6.260**		7.136**
RL	8.448	9.369	7.699	9.117	9.369
CC	4.657	3.993	4.937	4.632	3.993
CONS.	25.130	39.682	106.223***	37.397	39.682

Note: ***, **, and * denote statistical significance at the 0.1%, 1%, and 5% level of significance, respectively. Source: Authors' calculation.

previous research, the exchange rate can have an impact on poverty either positively or negatively. Likewise, Apergis & Cooray [60] and El-Sakka [93] explained exchange rate depreciation has a huge impact on remittances, resulting in poverty reduction. Ngangnon [94] discovered a different result, claiming that the exchange rate had a positive relationship with the poverty rate. The findings of this study indicate that the exchange rate has a negative but inconsistent effect. This could be due to the fact that the majority of OIC countries, including Bahrain, Jordan, Oman, Qatar, Saudi Arabia, Syria, and the UAE, have a fixed exchange rate policy.

CPI has a positive relationship with poverty, but it is not statistically significant. This discovery rejects H4 and is consistent with Yolanda [55], Junaidin & Muniarty [95], and Nurdiana et al. [96]. Inflation does not have a significant impact on poverty, possibly because the average inflation rate in OIC countries from 2007 to 2019 is still classified as mild inflation of 6.10 percent, and thus has no significant impact on the community's economy. This is consistent with Jha & Dang [97] which found that when inflation exceeds 10%, it can have a negative impact on a country's economy.

Except for Models 6 and 15, the total population has no effect on poverty levels. This finding disproves H7. Previous studies that looked at the relationship between population and poverty has created conflicting results. Depending on the population's quality, the population can have a negative or positive relationship with poverty [62]. population growth is one of the factors causing poverty problems [53, 63]. In contrast, Bakhri et al. [62] discovered that if population growth is balanced with good human qualities, it may have a negative impact on poverty levels. According to the findings of this study, the population has no effect on

poverty levels in OIC countries. The findings of this study support the findings of Bakhri et al. [62] who claim that population has no effect on poverty. The finding shows that the population has no effect on the level of poverty in OIC countries. This could be because the population level has not been able to encourage community economic growth [62, 98].

6. Conclusions and policy recommendation

The purpose of this research is to examine the impact of the Islamic social finance (zakat), the Islamic human development index, and the quality of government on poverty levels in several OIC member countries. From the period of 2007–2020, this study used a panel data analysis approach to examine the variables that affect the poverty rate in 39 OIC member countries. Throughout the study, the Islamic Human Development Index (IHDI) was developed as a proxy for measuring the quality of human development based on *Maqashid Sharia*. According to the findings, the Islamic Human Development Index, which serves as a proxy for the quality of human capital, is the most influential factor in poverty reduction in OIC countries. Furthermore, zakat, Voice and Accountability (VA), and trade openness all have a negative and significant relationship with poverty. The study's findings provide information about variables that can have a significant impact on a country's poverty level. The Regulatory Quality (RQ) variable has a positive and statistically significant relationship with the poverty rate, but this relationship is inconsistent across all models. In the meantime, the index of the institutional quality index, political stability and absence of violence/terrorism, government effectiveness, rule of law, control of corruption, population, CPI, and exchange rate has no significant effect on the poverty rate.

This paper contributes to the theoretical advancement of existing literature on zakat rate, human quality, governance, and macroeconomics in poverty alleviation. This study also includes information on variables that can have a significant impact on a country's poverty level. As a result, these findings can be used as a foundation for policymaking by state governments to combat poverty by optimizing a variety of factors, particularly human quality. Human quality can be improved by focusing on the protection of five dimensions, namely religion, soul, mind, lineage, and property, based on *Maqashid Sharia*.

There is only one indicator for each IHDI dimension in this study. As a result, more research is expected to be conducted to develop indicators that are more comprehensive and capable of representing each dimension of the IHDI. Further research is likely to expand on this research by modifying the dependent variable, such as conducting research on IHDI, zakat rate, institutional quality index, and macroeconomic variables on economic growth in OIC countries. Furthermore, further research can be developed by dissecting OIC countries based on the clustering country by income level.

Declarations

Author contribution statement

Tika Widiastuti: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

Appendix 1. List of countries used in the study.

Albania	Iran	Pakistan
Algeria	Iraq	Qatar
Azerbaijan	Jordan	Saudi Arabia
Bahrain	Kazakhstan	Senegal
Bangladesh	Kuwait	Sudan
Burkina Faso	Libya	Suriname
Cameroon	Malaysia	Syria
Cote d'Ivoire	Mali	Togo
Egypt	Morocco	Tunisia
Gabon	Mozambique	Turkey
Guinea	Niger	Uganda
Guyana	Nigeria	United Arab Emirates
Indonesia	Oman	Yemen

References

[1] N.M. Ha, N.D. Le, P. Trung-Kien, The impact of urbanization on income inequality: a study in vietnam, *J. Risk Financ. Manag.* 12 (3) (2019) 1–14.
 [2] SESRIC, OIC Economic Outlook 2021, vol. ثَفَقَقُ, no. ثَفَقَقُ, SESRIC, Ankara, 2021.
 [3] SESRIC, Towards the Achievement of Prioritized Sustainable Development Goals in OIC Countries 2020, SESRIC, Ankara, 2020.
 [4] A. Alvan, Forging a link between human development and income inequality: cross-country evidence, *Rev. Soc. Econ. Bus. Stud.* 7 (8) (2009) 31–43.
 [5] H. Farazmand, Z. Omid, A survey of the impact of globalization on income distribution inequality in islamic countries foreign studies, *Int. J. Adv. Stud. Humanit. Soc. Sci.* 2 (2) (2014) 211–222.
 [6] M.C. Nogueira, M. Madaleno, Are international indices good predictors of economic growth? Panel data and cluster analysis for European Union countries, *Sustain. Times* 13 (11) (2021) 1–24.
 [7] M.M. Septiarini, S. Herianingrum, Analisis I-HDI (Islamic-Human development index) di Jawa timur, *J. Ekon. Syariah Teor. dan Terap.* 4 (5) (2017) 381–395.
 [8] S. Herianingrum, H. Muhammad Nafik, Q. Fauzi, F.U. Afifa, N. Laila, The effect of government expenditure on islamic human development index, *Opción* 35 (88) (2019) 685–703.
 [9] M.H. Anto, Introducing an Islamic human development index (I-HDI) to measure development in OIC countries, *Islam Econ. Stud.* 19 (2) (2011) 69–95.

Imron Mawardi; Sri Herianingrum: Conceived and designed the experiments; Analyzed and interpreted the data.
 Siti Zulaikha: Contributed reagents, materials, analysis tools or data.
 Muhammad Ubaidillah Al Mustofa: Performed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.
 Nikmatul Atiya: Contributed reagents, materials, analysis tools or data; Wrote the paper.

Funding statement

This work was supported by Lembaga Penelitian dan Pengabdian Kepada Masyarakat, Universitas Airlangga.

Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

- [20] N. Abdullah, A.M. Derus, H.A.N. Al-Malkawi, The effectiveness of zakat in alleviating poverty and inequalities a measurement using a newly developed technique, *Humanomics* 31 (3) (2014) 314–329.
- [21] M. Bouanani, B. Belhadj, Zakat and poverty alleviation in Tunisia using the fuzzy approach, *J. Quant. Econ.* 71 (4) (2019) 835–850.
- [22] S. Herianingrum, R. Ernayani, H. Seto, M.N.H. Rayadono, M.Q. Fauzy, The impact of zakat, education expenditure, and health expenditure towards poverty reduction, *Sys. Rev. Pharm.* 11 (12) (2020) 235–239.
- [23] R. Rini, F. Fatimah, A. Purwanti, Zakat and poverty: an Indonesian experience, *Int. J. Innov. Creat. Chang.* 10 (11) (2020) 759–770.
- [24] Robobank, Institutional Quality and Economic Performance, 2016.
- [25] E. Aracil, G. Gómez-Bengochea, O. Moreno-de-Tejada, Institutional quality and the financial inclusion-poverty alleviation link: empirical evidence across countries, *Borsa Istanbul Rev* (2021) 1–10.
- [26] A. Ullah, Z. Kui, S. Ullah, C. Pinglu, S. Khan, Sustainable utilization of financial and institutional resources in reducing income inequality and poverty, *Sustain. Times* 13 (3) (2021) 1–25.
- [27] I. Ouechtati, Financial inclusion, institutional quality, and inequality: an empirical analysis, *J. Knowl. Econ.* (2022), 0123456789.
- [28] Y.J. Amuda, N.A.C. Embi, Alleviation of poverty among OIC countries through sadaqat, cash waqf and public funding, *Int. J. Trade, Econ. Financ.* 4 (6) (2013) 403–408.
- [29] M.A. Haneeff, A.H. Pramanik, M.O. Mohammed, M.F. Bin Amin, A.D. Muhammad, Integration of waqf-Islamic microfinance model for poverty reduction: the case of Bangladesh, *Int. J. Islam. Middle E Finance Manag.* 8 (2) (2015) 246–270.
- [30] S.A. Shaikh, Zakat collectible in OIC countries for poverty alleviation: a primer on empirical estimation, *Int. J. Zakat* 1 (1) (2016) 17–35.
- [31] N.S. Shirazi, S.A. Javed, A. Ashraf, Remittances, economic growth and poverty: a case of african OIC member countries, *Pakistan Dev. Rev.* 57 (2) (2018) 121–143.
- [32] B. Ingham, The meaning of development: interactions between 'new' and 'old' ideas, *World Dev.* 21 (11) (1993) 1803–1821.
- [33] J. Soares, R.H. Quintella, Development: an analysis of concepts, measurement and indicators, *Brazilian Adm. Rev.* 5 (2) (2008) 104–124.
- [34] P. Roy, S. Ray, S.K. Haldar, Socio-economic determinants of multidimensional poverty in rural West Bengal: a household level analysis, *J. Quant. Econ.* 17 (3) (2019) 603–622.
- [35] M.A. Salas-Bourquin, A Proposal for a Modified Human Development Index, *CEPAL Rev.*, 2014, pp. 29–44.
- [36] H. Hasan, S.S. Ali, Measuring deprivation from Maqāsid al-Sharīah dimensions in OIC countries: ranking and policy focus, *J. King Abdulaziz Univ. - Islam. Econ.* 31 (1) (2018) 3–26.
- [37] D. Brasington, M. Kato, W. Semmler, Transitioning out of poverty, *Metroeconomica* 61 (1) (2010) 68–95.
- [38] R.A. Intisar, M.R. Yaseen, R. Kousar, M. Usman, M. Sohail, A. Makhadm, Impact of trade openness and human capital on economic growth: a comparative investigation of asian countries, *Sustainability* 12 (2020) 1–19.
- [39] N. Kailani, M. Slama, Accelerating Islamic charities in Indonesia: zakat, sedekah and the immediacy of social media, *S. East Asia Res.* 28 (1) (2020) 70–86.
- [40] R.A. Kasri, Giving behaviors in Indonesia: motives and marketing implications for Islamic charities, *J. Islam. Mark.* 4 (3) (2013) 306–324.
- [41] D. Pistruoi, J. Fahed-Sreih, Islam, entrepreneurship and business values in the Middle East, *Int. J. Entrep. Innov. Manag.* 12 (1) (2010) 107–118.
- [42] A.C. Machado, C. Bilo, I. Helmy, The Role of Zakat in the Provision of Social Protection: a Comparison between Jordan, Palestine and Sudan, 2018.
- [43] R. Powelt, Zakat: drawing insights for legal theory and economic policy from Islamic jurisprudence, *Pittsburgh Tax. Rev.* 43 (7) (2009) 42–101.
- [44] S. Manurung, Islamic religiosity and development of zakat institution, *Qudus Int. J. Islam. Stud.* 1 (2) (2014) 197–220.
- [45] M. Azam, N. Iqbal, M. Tayyab, Zakat and Economic Development: Micro and Macro Level Evidence from Pakistan, 2014, pp. 85–95, vol. 3.
- [46] K. Ben Jedidia, K. Guerbouj, Effects of zakat on the economic growth in selected Islamic countries: empirical evidence, *Int. J. Dev. Issues* 20 (1) (2020) 126–142.
- [47] Y. Aziz, F. Mansor, S. Waqar, L.H. Abdullah, The nexus between zakat and poverty reduction, is the effective utilization of zakat necessary for achieving SDGs: a multidimensional poverty index approach, *Asian Soc. Work Policy Rev.* 14 (3) (2020) 235–247.
- [48] B. Shaukat, Q. Zhu, Finance and growth: particular role of Zakat to levitate development in transition economies, *Int. J. Financ. Econ.* 26 (1) (2020) 998–1017.
- [49] A. Chong, C. Calderón, Institutional quality and income distribution, *Econ. Dev. Cult. Change* 28 (4) (2000) 761–786.
- [50] M.A. Islam, M.A. Khan, J. Popp, W. Sroka, J. Oláh, Financial development and foreign direct investment-the moderating role of quality institutions, *Sustain. Times* 12 (9) (2020).
- [51] N.P.R. Deyshappriya, Impact of macroeconomic factors on income inequality and income distribution in asian countries, *Tokyo* 696 (2017).
- [52] N.G. Mankiw, *Principles of Macroeconomics*, 2010.
- [53] S. Neaime, I. Gaysset, Financial inclusion and stability in MENA: evidence from poverty and inequality, *Finance Res. Lett.* 24 (2018) 199–220. August 2017.
- [54] P. Siyan, A.E. Adegioriola, J.A. Adolphus, Unemployment and inflation: implication on poverty level in Nigeria, *J. Develop. Soc.* 3 (4) (2016) 17–45 [Online]. Available: <https://mpru.ub.uni-muenchen.de/id/eprint/79765>.
- [55] Y. Yolanda, Analysis of factors affecting inflation and its impact on human development index and poverty in Indonesia, *Eur. Res. Stud. J.* 20 (4) (2017) 38–56.
- [56] D. Ben-David, M.B. Loewy, Free entry and the trade mark-trade name protection, *J. Econ. Growth* (1998) 143–170.
- [57] W. Keller, Trade and the transmission of technology, *J. Econ. Growth* 7 (1) (2002) 5–24.
- [58] B.P. Singh, Institutional quality and poverty reduction in BRICS, *Poverty & Public Policy* (2021) 1–16.
- [59] C.C. Coughlin, K. Koedijk, What do we know about the long-run real exchange rate? *Review* 72 (1) (1990) 35–48.
- [60] N. Apergis, A. Cooray, Asymmetric real exchange rates and poverty: the role of remittances, *Emerg. Mark. Rev.* 35 (2018) 111–119.
- [61] T. Ajaz, M.Z. Nain, B. Kamaiah, N.K. Sharma, Stock prices, exchange rate and interest rate: evidence beyond symmetry, *J. Financ. Econ. Pol.* 9 (1) (2017) 2–19.
- [62] S. Bakhri, Bambang, P. Fauzi, Significant role of economic growth in alleviating poverty, *Adv. Soc. Sci. Educ. Humanit. Res.* 535 (2021) 504–507.
- [63] J.S. Kibirige, Population growth, poverty and health, *Soc. Sci. Med.* 45 (2) (1997) 247–259.
- [64] H. Chandra, District-level estimates of poverty incidence for the state of West Bengal in India: application of small area estimation technique combining NSSO survey and census data, *J. Quant. Econ.* 19 (2) (2021) 375–391.
- [65] M. Bouanani, B. Belhadj, Does zakat reduce poverty? Evidence from Tunisia using the fuzzy approach, *Metroeconomica* 71 (4) (2020) 835–850.
- [66] S. Shah, N. Debnath, Determinants of multidimensional poverty in rural Tripura, India, *J. Quant. Econ.* 20 (1) (2022) 69–95.
- [67] World Bank, *Poverty and Shared Prosperity 2020, 2020 worldbank.org*, <http://www.worldbank.org/en/publication/poverty-and-shared-prosperity>.
- [68] SESRIC, COMCEC, Measurement of poverty n OIC member countr es, Turkey (2015).
- [69] A.H. Bashir, Reducing poverty and income inequalities: current approaches and Islamic perspective, *J. King Abdulaziz Univ. - Islam. Econ.* 31 (1) (2018) 93–104.
- [70] F. Khaleel, Redefining poverty and its measurement: an islamic political economy perspectives, *Glob. Rev. Islam. Econ. Bus.* 4 (2) (2016) 68–81.
- [71] A.M. Sadeq, Poverty alleviation: an islamic perspective, *Humanomics* 13 (3) (1997) 110–134.
- [72] C. Hsiao, *Analysis Of Panel Data*, I, United Kingdom at the University Press, Cambridge, 2003.
- [73] S. Shan, Z. Lin, Y. Li, Y. Zeng, Attracting Chinese FDI in Africa: the role of natural resources, market size and institutional quality, *Crit. Perspect. Int. Bus.* 14 (2–3) (2018) 139–153.
- [74] A. Javaid, et al., Econometric assessment of institutional quality in mitigating global climate-change risk, *Sustain. Times* 14 (2) (2022) 1–13.
- [75] H.K. Kouadio, L.L. Gakpa, Do economic growth and institutional quality reduce poverty and inequality in West Africa? *J. Pol. Model.* (2021).
- [76] J. Tang, J. bai Huang, H. wei Zhang, Y. mei Luo, Time-varying impact of political risk on copper prices, *Trans. Nonferrous Met. Soc. China (English Ed.)* 31 (8) (2021) 2532–2544.
- [77] M.A. Trabelsi, H. Trabelsi, At what level of corruption does economic growth decrease? *J. Financ. Crime* 28 (4) (2021) 1317–1324.
- [78] N.I. Mahat, A. Warokka, Investigation on zakat as an indicator for Moslem countries' economic growth, *J. Global Bus. Adv.* 6 (1) (2013) 50–58.
- [79] I.R. Dohoo, C. Ducrot, C. Fourichon, A. Donald, D. Humik, An overview of techniques for dealing with large numbers of independent variables in epidemiologic studies, *Prev. Vet. Med.* 29 (1996) 221–239.
- [80] O. Carvache-Franco, M. Carvache-Franco, W. Carvache-Franco, M.A. Bustamante-Ubilla, The relationship between human-capital variables and innovative performance: evidence from Colombia, *Sustain. Times* 14 (6) (2022) 1–13.
- [81] E. Tebaldi, R. Mohan, Institutions and poverty, *J. Dev. Stud.* 46 (6) (2010) 1047–1066.
- [82] B.C. Arimah, Poverty reduction and human development in africa, *J. Hum. Dev.* 5 (3) (2004) 399–415.
- [83] J. Barkat, S. Yaping, N. Ud Din, S. Nazneen, Do effective public governance and gender (in)equality matter for poverty? *Econ. Res. Istraz.* (2021) 1–17, 0, no. 0.
- [84] S. Behnezhad, S.M.J. Razmi, S.S.M. Sadati, The role of institutional conditions in the impact of economic growth on poverty, *Int. J. Bus. Econ. Sci. Appl.* 78 (14) (2021) 78–85.
- [85] H. Siddique, I. Shehzadi, A. Shaheen, 4Muhammad Manzoor, The impact of governance and institutions on education and poverty alleviation: a panel study of SAARC economies, *Sci. Int. Lahore* 28 (2) (2016) 1431–1435, 28(2).
- [86] H. Kwon, E. Kim, Poverty reduction and good governance: examining the rationale of the millennium development goals, *Dev. Change* 45 (2) (2014) 353–375.
- [87] Z.Y. Yunan, Does corruption affect Islamic banking? Empirical evidence from the OIC countries, *J. Financ. Crime* 28 (1) (2021) 170–186.
- [88] M.M. Elhaddad, What determines FDI inflow to MENA countries? Empirical study on Gulf countries: sectoral level analysis, *Res. Int. Bus. Finance* 44 (2018) 332–339. January 2017.
- [89] Abdelmawla, M. Ahmed, The impacts of zakat and knowledge on poverty alleviation in Sudan: an empirical investigation (1990-2009), *J. Econ. Coop. Dev.* 35 (4) (2014).
- [90] H. Furqani, R. Mulyany, F. Yunus, Zakat for economic empowerment of the poor in Indonesia: models and implications, *J. Kaji. Ekon. dan Binis Islam* 11 (2) (2018) 392–411.
- [91] S. Haider, A.A. Ganaie, B. Kamaiah, Total factor productivity and openness in Indian economy: 1970–2011, *Foreign Trade Rev.* 54 (1) (2019) 46–57.
- [92] M.A. Arham, A. Fadhli, S.I. Dai, Does agricultural performance contribute to rural poverty reduction in Indonesia? *J. Econ. Policy* 13 (1) (2020) 69–83.
- [93] M.I.T. El-Sakka, R. McNabb, The macroeconomic determinants of emigrant remittances, *World Dev.* 27 (8) (1999) 1493–1502.
- [94] S.K. Gnanon, Exchange rate pressure, fiscal redistribution and poverty in developing countries, *Springer US* 54 (4) (2021).
- [95] J. Junaidin, P. Muniarty, Influence of inflation on poverty in Bima city, Ilomata Int. J. Manag. 1 (3) (2020) 88–92.

- [96] M. Hasan Nurdiana, N. Arisah, A.S. Riesso, D.F. Hasanah, An analysis of the effect of economic growth, inflation, and open unemployment on poverty in south sulawesi province, *Quest Journals J. Res. Bus. Manag.* 8 (9) (2020) 14–17 [Online]. Available: www.questjournals.org.
- [97] R. Jha, T.N. Dang, Inflation variability and the relationship between inflation and growth, *Macroecon. Financ. Emerg. Mark. Econ.* 5 (1) (2012) 3–17.
- [98] P.J. Dawson, R. Tiffin, Is there a long-run relationship between population growth and living standards? The case of India, *J. Dev. Stud.* 34 (5) (1998) 149–156.