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SOCIOECONOMIC DEVELOPMENT IN MUSLIM COUNTRIES: IBN KHALDUN'S DEVELOPMENT MODEL-BASED APPROACH

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ABSTRACT

This study constructs a measure of socioeconomic development in Muslim countries based on Ibn Khaldun's model of development. It proposes a composite index of development based on three dimensions, namely human empowerment, government and institution, and economic growth, and terms it as Ibn Khaldun-based socioeconomic development index (I-SDI). A total of 13 indicators are selected to represent each dimension and are employed for construction of the index using an equal weighted method and additive aggregation approach. In general, we note that many Muslim countries are underperformed., as indicated by the low value of I-SDI. We further find that Muslim countries that perform well in government and institution dimensions tend to experience better socioeconomic development. We believe that the proposed I-SDI is non-redundant and robust and hence can be utilized as an alternative way of measuring the development in Muslim countries. In other words, the Ibn Khaldun's model of development is exceptionally meaningful in explaining the socio-economic performance of Muslim countries.

Keywords: Ibn Khaldun's development model, Muslim countries, Development measures, I-SDI.
JEL classification: B3; E0; I3; O1.

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I. INTRODUCTION

How to measure the progress of an economy has received substantial attention in academic research. The GDP per capita has been commonly used to reflect economic growth of a country. However, it has been criticized by some scholars that GDP only measures the monetary aspect, while the development should relate to many other aspects of life. Therefore, scholars and academicians have proposed alternative measures of economic development by involving multidimensional aspects of a human's life. Perhaps, the most well-known measure that considers some dimensions of a human's life is Human Development Index (HDI). Alkire and Santos (2010) further present a new multidimensional poverty measure (Multidimensional Poverty Index) by using the households' survey to identify the acute poverty in three main dimensions, namely education, health, and the standard of living. Moreover, many other measures of development have also been constructed. Ravallion (2012) lists several of these indices, which include Physical Quality of Life Index, Environmental Performance Index, Doing Business Index, and Worldwide Governance Indicators. Still, the construction of these measures draws some criticisms from other scholars in terms of the selection of the dimensions and indicators and the weighting and aggregation methods.

In this regard, Islamic scholars point to the need for additional indicators that consider Islamic perspectives to identify a country's development. According to Yusof et al (2015), Muslim countries urgently need to develop an alternative measure that represents a more holistic and inclusive concept of human development by incorporating physical, intellectual, and spiritual aspects of human existence. Anto (2011) argues that despite its usefulness, HDI is not fully compatible and sufficient for measuring economic development from an Islamic perspective. He introduces the Islamic Human Development Index (I-HDI) in order to measure human development. Meanwhile, Rama & Yusuf (2019) develop an alternative Human Development Index from the Islamic perspective and claim that the index is more holistic and comprehensive in capturing the religious and ethical values of socioeconomic development in Muslim countries. Batchelor (2013) introduces a new Islamic Index of Well-being for Muslim Majority Countries, which is based on principles derived from the Qur'an and Sunnah to comprise the key fields of Personal Religiosity and Social Interactions. Dar and Otiti (2002) construct an Ethics-augmented Human Development Index for all countries generally and the OIC member countries specifically. Fevzi Esen (2015) and Hasan et al. (2018) also suggest a method to construct the socioeconomic development, while Ghazal & Zulkhibri (2016) propose an Islamic Inclusive Growth Index (I-IGI) to gauge the performance of Muslim countries. These measures focus on socioeconomic development based on the concept of Maqasid al-Shari'ah, considering the five aspects of the objectives of the Shari'ah, namely the protection of faith (al-Din) or religion, the protection of the intellect (al-Aql), the protection of posterity (an-Nasl), the protection of wealth (al-Mal) and the protection of self (an-Nafs). In addition, Nizam and Larbani (2017) propose a Maqashid Al-Shariah based Composite Index for measuring Socioeconomic policies in OIC member countries. Meanwhile, Rehman and Askari (2010) develop an Economic Islamicity Index for Muslim countries, but Abdeldayem and Aldulaimi (2018) criticize this index and conclude that this index does not conform to the Maqashid Shariah.

While these Maqashid al-Shari'ah-based development measures do better capture the essence of development in Islam, the selection of indicators for each dimension remains debatable. For instance, the corruption perception index and crime rate may be insufficient indicators of faith or religion dimension. Several previous studies such as Jana-Masri & Priester (2007), Tiliouine et al. (2009), and Mohd Dali et al. (2019), have established two dimensions of Islamic religiosity, namely Islamic beliefs and Islamic practices. A set of questionnaires or at least the most suitable survey data are required to gather the microdata of these proxies. Therefore, the religion dimension related to Maqashid al-Shari'ah is hard to measure and highly complicated. Thus, this study proposes a new measure of socioeconomic development from the Islamic perspective by adopting Ibn Khaldun's theory of development as interpreted by Chapra (2008). Chapra explains that Ibn Khaldun developed a powerful model to answer some of the most crucial issues in the rise and fall of the Muslim world and calls it a multidisciplinary-dynamic theory of development. The interaction between political, moral, institutional, social, and economic variables determines the development and decline of an economy or state. It is therefore, according to Mohammad (2010), the concept of development from Ibn Khaldun is useful in the development of Muslim countries. This study further attempts to classify the countries into four groups according to their performance of socioeconomic development and per capita income. According to Chapra, despite the fact that Ibn Khaldun's model is more than 600 years ago, it remains relevant in the Muslim world today. In other words, Ibn Khaldun's insights still hold relevance and have implications for understanding contemporary challenges faced by the Muslim world. In line with Chapra, El-Kholei (2019) also states that Ibn Khaldun's writings can serve as a source to develop a model that addresses issues related to sustainable development. This is because Ibn Khaldun observed the rise and fall of the dynasties in his time and the past, and in the east and west.

To our best knowledge, there is limited research that adopts Ibn Khaldun's concept of development to measure the performance of Muslim countries. Most of the studies, such as Putra & Indra (2016), Fatoni et al. (2019), and Affandi & Astuti (2013), employ Ibn Khaldun's model of development to identify the determinant of poverty in Muslim countries. Thus, this study contributes to the literature in the following two aspects. First, it provides a new measure of socioeconomic development for Muslim countries. While the majority of existing research has focused mainly on constructing the measures by implementing the concept of Maqashid Shari'ah, this study proposes an alternative approach by using Ibn Khaldun's model of development to identify the performance of Muslim countries as suggested by Chapra (2008). Second, this study complements existing studies by defining more inclusive dimensions and indicators in terms of development related to political, moral, social, institutional, economic, demographic, and psychological aspects, as emphasized by Ibn Khaldun's model of development. In this study, three dimensions, namely Human Empowerment, Government and Institution, and Economic Growth, are considered in the construction of the development index.

II. LITERATURE REVIEW

2.1. Ibn Khaldun's Development Theory

Chapra (2008) praises Ibn Khaldun's thought or model as influential in answering the rise and fall of Muslim countries for several centuries. Although the model consists of factors generated from historical events, it is capable of explaining the decline and development of Muslim countries in the present day. According to El-Kholei (2019), having witnessed the rise and decline of various ruling dynasties, Ibn Khaldun built his method upon rational deduction and careful observation. This makes his writings relevant even in the present era. In summary, El-Kholei explains that in order to be sustainable, the city administrators and planners of a region have to: 1) adopt and apply principles for good governance, 2) achieve social justice, 3) protect the environment, and 4) mitigate market imperfections, and encourage the transformation towards a green economy. Ibn Khaldun's model of development, as interpreted by Chapra is as follows:

- The strength of the sovereign (al Mulk) is through the implementation of Shariah.
- Shariah cannot be implemented except by the sovereign (al-Mulk)
- The sovereign cannot gain strength except through the people (al-rijal)
- People cannot be sustained except by wealth (al-mal)
- Wealth cannot be acquired except through development (al-imarah)
- Development cannot be attained except through justice (al-adl)
- Justice is the criterion (al-mizan) by which God will evaluate mankind.
- The sovereign is charged with the responsibility of actualizing justice.

This model consists of socioeconomic and political factors, namely political authority (G), Shariah (S), people (N), wealth (W), development (g) and justice (j). These factors interact over time in a circular chain to cause the decline and development of an economy (Mohammad, 2010). It is noteworthy that each factor is considered to have the same function as the trigger for the direction of the circular movements. If one factor moves in a negative direction and the other factors respond in the same direction, then the circular movement will lead to a decline more quickly. In the long run, it is difficult to identify the cause. Conversely, when the other factors do not follow the same direction, then the failure may be much slower.

The following are several inter-related variables described in Ibn Khaldun's model of development in order to promote the development of a country (Chapra, 2008; Mohammad, 2010).

2.1.1. The Role of Human-being

The rise or decline of a country depends on societal welfare. Thus, in Ibn Khaldun's development model, citizens are a key factor. Human beings have their power to establish their relations with their fellow humans for the fulfilment of individual needs through the collective good (Amirabedini, 2014). In other words, people have the ability to change their life to a better quality of life but also may cause a failure in their life. Economic development, therefore, does not only depend on economic factors but also the moral, institutional, demography, social, psychological, and political through a circular process in the long run.

2.1.2. The Role of Development and Justice

As previously explained, people may create welfare through their ability and power. However, they also may not be motivated if there is a lack of development. Development covers not only economic growth or income but also all aspects of human beings, such as the low rate of taxes, healthy life, secure jobs, and a good physical environment. Development is impossible without justice because the equality or fairness is fundamental to development. Justice provides equal opportunities for all people to participate in the economy and being productive with fairness and no discrimination creates trust and cooperation (Chapra, 2008; Mohammad, 2010). In this circumstance, people are motivated to contribute to the economy for achieving welfare.

2.1.3. The Role of State and Shariah

Shariah is the foundation of the Muslim society and directs human behavior to be good. According to Amirabedini (2014), Shariah creates morality and civic obedience, so it may encourage justice, improve harmony, and promote development. Meanwhile, the role of the state is to protect human rights and promote development by the implementation of Shariah or the rules fairly. Therefore, there is a need for good governance to ensure justice. Bad rulership may create worse people because they seek to protect themselves by means of lies, tricks, and dishonesty. Corruption is an example of bad government.

2.1.4. The Role of Wealth

Economic growth of a country is achieved when people gain income (Fatoni et al, 2019). However, in order to create the income, people should have the opportunity to participate in economic activities and markets provided by the state through the implementation of fair laws or Shariah. The more people participate in the economic activity equally, the more income they will gain, and thus, it will lead to greater development and wealth. As the income and wealth rise, tax revenues also increase and allow the government to expend more on the people's well-being.

III. DATA AND METHODOLOGY

It is not straightforward to construct a reliable, useful, and comprehensive composite index of development. In particular, there would be issues related to the dimensions of development to be measured as well as the justification of the selected indicators. It is, therefore, the first step in constructing a composite index is to define the concept to be measured (Revallion, 2012; Mazziotta & Pareto, 2013). For instance, since there is an argument that GDP is insufficient to measure the well-being, a series of development index has been constructed as the alternative tools. While any indices that measure the performance of an economy would not be perfect, it is still important to continue improving the index to better capture development of a country.

As mentioned earlier, this study attempts to build an alternative measure to gauge the socioeconomic development in Muslim countries based on Ibn

Khaldun's model of development. Consequently, the index is composed of Human Empowerment, Government and Institution, and Economic Growth. These dimensions reflect the factors explained in Ibn Khaldun's model of development, namely state and Shariah, people, development and justice, and wealth. This study further draws 13 indicators based on a thorough review of existing literature and the availability of data. The justification for selecting the indicators is presented in Table 1 below. This is a cross-country database covering 54 Muslim countries which are members of OIC (the Organization of Islamic Cooperation) where the data are available from SESRIC (Statistical, Economic and Social Research and Training Centre for Islamic Countries). SESRIC provides data specifically tailored for these countries, making it a comprehensive and reliable source for analysis. Other countries outside the OIC may have different contexts, demographics, and characteristics that would require separate data sources and considerations. Therefore, the database focuses on the 54 Muslim countries within the OIC to ensure consistency and relevance in the data analysis. It uses the latest data of each country and each indicator and is collected from various sources, including World Bank, World Economic Forum, UNDP (United Nations Development Programme), SESRIC, Global Initiative Against Transnational Organized Crime, and World Population Review. To standardize the data into one format, the min-max normalization method is used to normalize the original values, which are converted into scores between 0-1, namely:

$$Normalized\ Indicator = \frac{actual\ value - \min value}{aximum\ value - \min value}$$

Meanwhile, the equal weighted approach is employed to calculate the composite index of each dimension. This approach has been applied in the Multidimensional Poverty Index (MPI) and various studies considering that each dimension and indicators used in this present study are equally important. Three dimensions are given equal weight (1/3 or 0.33 of each dimension) and each indicator within its dimension is given equal weight, too. Hence, access to health, access to education, access to the financial sector, gender equality, and life expectancy are weighted 1/15 each. Shariah law, voice and accountability, government effectiveness, corruption control, and the crime prevalence are also given 1/15 equally. Employment rate, per capita income, and income inequality are weighted 1/9 each. The Ibn Khaldun-based socioeconomic development index (I-SDI) is then aggregated by using the common method namely additive aggregation through this following formula:

$$SDI = \omega_1 I_1 + \omega_2 I_2 + \cdots \omega_m I_m = \sum_{i-1}^{m} \omega_i I_i$$

Where I-SDI is the Ibn Khaldun-based socioeconomic development index, ω_i is the weight of i^{th} indicator, and I_i is the normalized score of the i^{th} indicator.

Table 1.
Dimension and Indicators of Socioeconomic Development Based on Ibn Khaldun's Model of Development (I-SDI)

Dimensions	Indicators	Unit of Measurement	Justification	Source
Human empowerment (1/3)	Access to health (1/15)	Government expenditure on health sector (percentage of GDP)	It measures the input provided by government in health and education sectors to ensure the fulfillment of health and education accessibility as the basic needs of human beings. It also reflects the government commitment to expenditures for various forms social infrastructure (McKinley, 2010)	SESRIC (2022). Data used: 2019
	Access to education (1/15)	Government expenditure on education sector (percentage of total government expenditure)		SESRIC (2022) Data used: 2019
	Access to finance (1/15)	Account ownership at a financial institution	It is commonly used as a proxy for financial inclusion. Access to finance is considered as a substantial mechanism in promoting income equality and economic growth (Gupta & Sharma, 2021). Account ownership reflects the accessibility to the finance sector. It measures the financial inclusion in respect to lower account costs, greater proximity to financial intermediaries, stronger legal rights, and more politically stable environments (Allen et al., 2016).	SESRIC (2022) Data used: 2021
	Gender equality (1/15)	Gender equality index	It measures the gap achievement between woman and man in four aspects, namely economic participation, educational attainment, health and survival, and political empowerment. The great performance of gender equity is considered crucial for enhancing human capabilities and supporting the economic development (McKinley, 2010).	WEF (World Economic Forum, 2022) Data used: 2020
	Life Expectancy (1/15)	Life expectancy at birth (years)	It is widely used as the proxy for health indicator to measure the socioeconomic development of a country or region (Miladinov, 2020) and reflects the longevity of the people in a state (Vizard & Speed, 2016).	World Bank (2022) Data used: 2021

Table 1.
Dimension and Indicators of Socioeconomic Development Based on Ibn Khaldun's Model of Development (I-SDI) (Continued)

Dimensions	Indicators	Unit of Measurement	Justification	Source
Government and Institution (1/3)	Islamic law (1/15)	Implementation of Shariah as the basic law in society	It reflects the application of Islamic law as a legal system in a state. It consists of three form of Shariah implementation, namely a classical Shariah system, mixed system, and secular system.	World Population Review (2022) Data used: 2021
	Voice and accountability (1/15)	Voice and accountability	It represents perceptions of by means the people in a country are able to give their voice in selecting their government, as well as freedom of expression, freedom of association, and a free media (Kaufmann et al., 2010).	World Bank (2022) Data used: 2020
	Government effectiveness (1/15)	Government effectiveness	It measures how the society perceives the quality of the governments in terms of public services, civil service, policy implementation, as well as the trustworthiness of their commitment to such policies, and the degree of independency from political pressures (Kaufmann et al., 2010).	World Bank (2022) Data used: 2020
	Corruption (1/15)	Control of corruption	It captures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests (Kaufmann et al., 2010).	World Bank (2022) Data used: 2020
	Crime prevalence (1/15)	Criminality Index	It captures the ability to live in a secure life and free from violence or other related illegal activities that may be a threat to security.	Global Initiative Against Transnational Organized Crime (2022) Data used: 2021
Economic growth (1/3)	Employment rate (1/9)	Employment rate	It reflects the ability of an economy to provide jobs and employs the labor force.	SESRIC and World Bank (2022) Data used: 2019
	Per capita income (1/9)	GDP growth	It is a common tool to measure a country's development progress.	World Bank (2022) Data used: 2020
	Income Inequality (1/9)	Income Inequality rate	It is widely used to measures the distribution of income among a society. It reflects the disparity of an economy.	UNDP (2022) Data used: 2019

IV. RESULT AND DISCUSSION

4.1. Country Rankings and Patterns

As previously mentioned, the analysis utilizes the most recent data available for each country and indicator. For instance, the indicator measuring account ownership at financial institutions is based on 2021 data, while indicator measuring employment rate is based on the latest available 2019 data. Table 2 presents the result of the Ibn Khaldun-based socioeconomic development index (I-SDI) and its three dimensions. Among 54 Muslim countries considered by the I-SDI, United Arab Emirates, Qatar, Oman, Malaysia, Maldives, Kuwait, Brunei, and Bahrain have the highest value of I-SDI. Meanwhile, Tajikistan, Comoros, Yemen, Afghanistan, Syria, Guinea-Bissau, Chad, Uzbekistan, Sudan, and Turkmenistan are Muslim countries with the lowest rank of socioeconomic development. Most countries in the highest rank have good performance in government and institution dimension and one of the other two dimensions, namely human empowerment or economic growth. For instance, Malaysia, Maldives, and Kuwait, despite they may not have a good performance in terms of economic growth dimension, these countries are in the fourth, fifth, and sixth position of socioeconomic development successively due to their performance in government and institution, as well as human empowerment. Qatar and Oman may not be in the top 10 in terms of human empowerment, but they have very good performance in government and institution as well as economic growth. Thus, for the final ranking, they are in the second and third positions. Meanwhile, Brunei has the highest value of government and institution dimension and is placed in the top 10, despite its low performance of the economic growth dimension and human empowerment dimension. It further indicates that human empowerment and economic growth support socioeconomic development, but government and institution dimension is considered to play the most crucial role in the socioeconomic development of Muslim countries.

Furthermore, countries that are in the middle of the I-SDI ranking generally perform greatly in government and institution, or at least one of the two other indicators – performances of human empowerment and economic growth, are in the middle rank. Despite performing poorly in economic growth and human empowerment, Jordan and Morocco have a good achievement in the government and institution. Kazakhstan, Indonesia, and Albania may perform abjectly in terms of government and institution, but these countries show good achievement in economic growth and human empowerment. At the bottom of the final ranking, countries generally perform poorly in all dimensions. Cameroon and Tajikistan are in the middle rank of economic growth dimension and human empowerment, but they witness a very poorly achievement of government and institution. Meanwhile, Comoros has a very low value of human empowerment and economic growth, despite its good performance in the government and institution. Turkmenistan, Sudan, and Uzbekistan are in the bottom three and perform very poorly in all dimensions.

In human empowerment dimension, the indicators used are government expenditure in health, government expenditure in education, access to financial services, gender equality, and life expectancy. The countries that have the best achievement are Malaysia, Iran, United Arab Emirates, Maldives, and Kazakhstan,

while Sudan, Djibouti, Comoros, Guinea-Bissau, and Turkmenistan have the lowest value in human empowerment. Generally, the countries spend 14% of their total expenditure on education and 5% of the GDP on the health sector. In the context of gender equality, most of the countries share the same parity, with the average score is 0.6. Meanwhile, the average life expectancy at birth is 69 years, and most of the countries are above the average value. However, many Muslim countries are considered to have low accessibility to the financial sector. There are only ten out of 54 countries that have financial account ownership over 70% of their total adult population. Thus, it is noticeable that the impact of access to the financial sector greatly increases human empowerment in Muslim countries.

The indicators used for government and institution dimension are Islamic law implementation, voice and accountability, government effectiveness, control of corruption, and crime prevalence. The top-ranked countries are Brunei, United Arab Emirates, Malaysia, Qatar, and Oman, while Guinea-Bissau, Cameroon, Tajikistan, Turkmenistan, and Chad are at the bottom. As mentioned earlier, the performance in this dimension has a considerable impact on the overall value of I-SDI and the final ranking. This result is in line with what has been explained by Chapra (2008) using Ibn Khaldun's model of development that political illegitimacy is the trigger of the decline in Muslim countries. El-Kholei (2019) also mentions that the city administrators and planners of each region should adopt and apply principles for good governance, since Ibn Khaldun emphasized the role of good governance in initiating the development process. High levels of corruption, incompetent and ineffective government, and low level of freedom of political participation in a number of Muslim countries gradually interact with other aspects of human beings in a negative direction and generate a decline. Furthermore, it is found that apart from implementing the Islamic law either classically by formally incorporating into the national law or partially in a certain area of national law, the top-ranked countries also have good performance in government effectiveness and control of corruption. In terms of criminal prevalence, most of the countries share the same pattern, with the average score of the criminality index of 0.5. Nevertheless, it is noteworthy that there is no correlation between Shariah implementation and the overall value of I-SDI. In some cases, countries under the Shariah system have low performance in socioeconomic development such as Sudan, Syria, Afghanistan, and Yemen.

Meanwhile, economic growth dimension consists of three indicators, namely employment rate, per capita income, and income inequality. Qatar, Kazakhstan, Mali, Azerbaijan, and Niger perform very greatly in this dimension, while Morocco, Syria, Lebanon, Comoros, and Iran gain the lowest values. The result shows that most of the countries placed in the highest level of I-SDI do not position at the top-rank in economic growth dimension. However, it should not be neglected that employment rate has a positive link to economic growth in Muslim countries. Qatar, United Arab Emirates, Kuwait, and Oman achieve the higher level of employment rate and performs well in socioeconomic development, although they consider having a low level of GDP growth. Furthermore, the higher level of income inequality also can be seen in countries with the low level of I-SDI.

It is also important to note that in some countries, there may be incomplete data for certain indicators within dimensions. As a result, the calculation for each

sub-indices continues to employ equal weighting for the available indicators. For instance, countries like Brunei and Suriname do not provide the data on financial account ownership. Consequently, when calculating the sub-indices for human empowerment dimension in these countries, only the available indicators are considered, namely government expenditure on health sector, government expenditure on education sector, gender equality, and life expectancy. Each indicator is then weighted 1/12 not 1/15. However, this does not substantially affect the result of I-SDI. The next section provides the sensitivity and robustness result when certain indicators are excluded from the calculation.

Table 2.
Muslim Country Rankings According to the I-SDI and Its Dimensions

Country Code	Country	I-SDI		Human Empowerment		Government and Institution		Economic Growth	
		Value	Rank	Value	Rank	Value	Rank	Value	Rank
ARE	United Arab Emirates	0.60	1	0.1641	3	0.2161	2	0.2152	12
QAT	Qatar	0.58	2	0.1470	11	0.2053	4	0.2310	3
OMN	Oman	0.58	3	0.1521	10	0.2042	5	0.2214	6
MYS	Malaysia	0.57	4	0.1692	1	0.2127	3	0.1921	34
MDV	Maldives	0.56	5	0.1621	4	0.1984	7	0.2021	24
KWT	Kuwait	0.56	6	0.1591	6	0.1924	8	0.2041	21
BRN	Brunei	0.55	7	0.1314	28	0.2356	1	0.1865	40
BHR	Bahrain	0.55	8	0.1569	7	0.1898	10	0.2042	20
UGA	Uganda	0.53	9	0.1442	13	0.1633	20	0.2184	9
BGD	Bangladesh	0.53	10	0.1398	17	0.1709	16	0.2145	13
KAZ	Kazakhstan	0.52	11	0.1615	5	0.1236	35	0.2319	2
JOR	Jordan	0.52	12	0.1343	23	0.1995	6	0.1821	41
SAU	Saudi Arabia	0.51	13	0.1561	8	0.1820	12	0.1761	44
MLI	Mali	0.51	14	0.1223	35	0.1678	18	0.2219	5
GMB	Gambia	0.51	15	0.1124	41	0.1894	11	0.2097	19
ALG	Algeria	0.51	16	0.1367	20	0.1780	14	0.1961	30
IDN	Indonesia	0.48	17	0.1425	15	0.1253	34	0.2168	11
ALB	Albania	0.48	18	0.1455	12	0.1264	32	0.2125	16
MAR	Morocco	0.48	19	0.1349	22	0.1911	9	0.1542	50
TUN	Tunisia	0.48	20	0.1384	18	0.1469	25	0.1928	32
MRT	Mauritania	0.47	21	0.1071	43	0.1795	13	0.1875	39
SEN	Senegal	0.47	22	0.1432	14	0.1414	26	0.1894	37
PAK	Pakistan	0.47	23	0.1064	44	0.1621	21	0.2036	22
IRQ	Iraq	0.47	24	0.1339	24	0.1400	27	0.1963	29
BEN	Benin	0.47	25	0.1308	29	0.1257	33	0.2132	15
IRN	Iran	0.46	26	0.1687	2	0.1483	24	0.1472	53
BFA	Burkina Faso	0.46	27	0.1262	31	0.1179	38	0.2199	8
GUY	Guyana	0.46	28	0.1364	21	0.1331	29	0.1936	31
NGA	Nigeria	0.46	29	0.1149	40	0.1528	23	0.1925	33
EGY	Egypt	0.46	30	0.1191	36	0.1687	17	0.1724	47

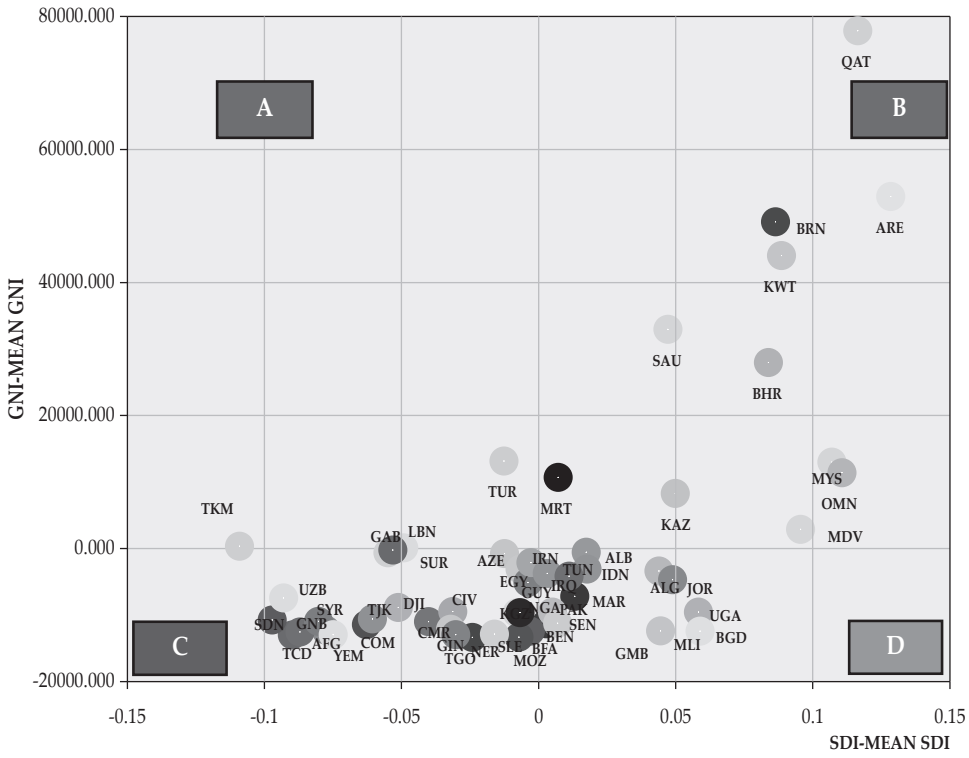
Table 2.
Muslim Country Rankings According to the I-SDI and Its Dimensions (Continued)

Country Code	Country	I-SDI		Human Empowerment		Government and Institution		Economic Growth	
		Value	Rank	Value	Rank	Value	Rank	Value	Rank
MOZ	Mozambique	0.46	31	0.1420	16	0.0968	48	0.2210	7
KGZ	Kyrgyz Republic	0.46	32	0.1377	19	0.1069	42	0.2145	14
AZE	Azerbaijan	0.45	33	0.1231	34	0.1030	44	0.2285	4
TUR	Türkiye	0.45	34	0.1547	9	0.1085	41	0.1911	35
SLE	Sierra Leone	0.45	35	0.1294	30	0.1117	39	0.2099	18
NER	Niger	0.44	36	0.1063	45	0.1036	43	0.2329	1
TGO	Togo	0.44	37	0.1326	26	0.1025	46	0.2017	25
CIV	Cote d'Ivoire	0.44	38	0.1239	33	0.1116	40	0.2002	27
GIN	Guinea	0.43	39	0.1151	39	0.1028	45	0.2171	10
CMR	Cameroon	0.43	40	0.1315	27	0.0843	51	0.2111	17
LBN	Lebanon	0.42	41	0.1175	37	0.1575	22	0.1428	54
DJI	Djibouti	0.42	42	0.0793	53	0.1713	15	0.1652	48
SUR	Suriname	0.41	43	0.1116	42	0.1295	31	0.1728	46
GAB	Gabon	0.41	44	0.1246	32	0.0994	47	0.1881	38
TJK	Tajikistan	0.41	45	0.1326	25	0.0769	52	0.1969	28
COM	Comoros	0.40	46	0.0868	52	0.1668	19	0.1505	52
YEM	Yemen	0.39	47	0.0942	49	0.1188	36	0.1791	43
AFG	Afghanistan	0.39	48	0.0956	48	0.1369	28	0.1568	49
SYR	Syria	0.39	49	0.1168	38	0.1182	37	0.1517	51
GNB	Guinea-Bissau	0.38	50	0.0907	51	0.0877	50	0.2015	26
TCD	Chad	0.38	51	0.1028	46	0.0717	54	0.2027	23
UZB	Uzbekistan	0.37	52	0.0980	47	0.0948	49	0.1811	42
SDN	Sudan	0.37	53	0.0651	54	0.1310	30	0.1737	45
TKM	Turkmenistan	0.36	54	0.0922	50	0.0751	53	0.1905	36

Source: Author's calculations

For further analysis, this study classifies these countries into four groups based on the differences in their socioeconomic development index and gross national income (GNI) from their means, as illustrated in Figure 1. Following Giannias et al. (2004), we cluster the countries into high productivity or relatively high income and high I-SDI (area B), low productivity or relatively low income and low I-SDI (area C), high amenity or relatively low income and high I-SDI (area D), low amenity or relatively high income but low I-SDI (area A). As presented in Table 3, Qatar, United Arab Emirates, Brunei, Kuwait, Saudi Arabia, Bahrain, Malaysia, Oman, Mauritania, Kazakhstan, Maldives, and Albania are identified as high productivity countries. At the same time, Azerbaijan, Türkiye, Gabon, Lebanon, and Turkmenistan are classified as low amenity countries. This result further indicates that high income does not necessarily reflect a high level of development. It is a peculiarity that countries such as Türkiye and Azerbaijan who are categorized as upper-middle-income countries by the World Bank (WESP-UN, 2020), but the low development may take place. By referring to the result

in Table 2, the countries perform poorly in terms of government and institution. Notwithstanding they do not implement Islamic law or even the criminality prevalence is also at the average value, the achievement of other indicators is very low. The voice and accountability, government effectiveness, and control of corruption are scored poorly. In other words, the government and institution in the countries that are classified as low amenity group is pondered to unsuccessfully promote socioeconomic development by enhancing human empowerment, providing equal opportunity for the society to work, be productive, and earn income. Conversely, it is interesting to note that some low-income countries such as Benin, Uganda, Gambia, and Mali are found to have sizeable I-SDI, along with a number of lower-middle-income countries such as Indonesia, Tunisia, Morocco, and Bangladesh. These countries are identified as high amenity groups due to their good performance in all dimensions. Furthermore, many Muslim countries are still categorized as low productivity group in terms of their income and I-SDI. Iran, for example, may perform greatly in human empowerment, but the employment rate and GDP growth are poor. Despite enjoying a favorable GDP growth, Egypt still faces several problems in terms of income inequality and unemployment. This result implies that a number of Muslim countries are still left behind fellow Muslim countries.



Source: Author's Data

Figure 1.
The Classification of Muslim Countries by Differences of Their Socioeconomic Development and Income

To observe the position of Muslim countries with respect to other countries, this study also strives to measure the I-SDI of ten countries that are considered to be in the top rank and have the highest value of HDI. The result is presented in Table 4 and reveals that Norway still achieves the 1st rank, which is equivalent to the result in HDI. However, it is important to note that the value of their I-SDI is still above Muslim countries, except the United Arab Emirates. In the human empowerment dimension, these countries perform greatly in all aspects. Their government spending in health and education are higher than the average expenditure in Muslim countries for health and education. The accessibility to the financial sector represented by account ownership in the bank or other financial institution is comparatively high, followed by good achievement in gender equality. People in these countries also are considered to have longer average life expectancy at birth at 82 years. Still, they also perform very well in terms of government and institution. The fact that these countries have a strong and good government is reflected by their highest score in voice and accountability, government effectiveness, control of corruption, and the low rate of criminality. Meanwhile, the higher value in economic growth dimension for these countries is heavily influenced by the low rate of income inequality. Consequently, this finding denotes that the position of Muslim countries in terms of socioeconomic development remains behind, even when comparing the high-income Muslim countries, such as Brunei, Qatar, Kuwait, Oman, Saudi Arabia, and the United Arab Emirates with other high-income countries.

Table 3.
The Classification of Muslim Countries by Differences of Their Socioeconomic Development and Income

High Income-High I-SDI	Low Income-High I-SDI	High Income-Low I-SDI	Low Income-Low I-SDI
Qatar, United Arab Emirates, Brunei, Kuwait, Saudi Arabia, Bahrain, Malaysia, Oman, Mauritania, Kazakhstan, Maldives, Albania	Iraq, Tunisia, Indonesia, Algeria, Jordan, Morocco, Pakistan, Benin, Senegal, Gambia, Mali, Bangladesh, Uganda	Azerbaijan, Türkiye, Gabon, Lebanon, Turkmenistan	Egypt, Iran, Guyana, Nigeria, Kyrgyz Republic, Burkina Faso, Mozambique, Cote d'Ivoire, Djibouti, Cameroon, Togo, Tajikistan, Comoros, Yemen, Afghanistan, Syria, Chad, Uzbekistan, Guinea, Sudan, Sierra Leone, Niger, Guinea-Bissau

Source: Author's Data

Table 4.
Ten Country Rankings According to the I-SDI and Its Dimensions

Country	I-SDI		HDI (2019)	
	Value	Ranking	Value	Ranking
Norway	0.64	1	0.957	1
Finland	0.63	2	0.938	11
Iceland	0.63	3	0.949	4
Denmark	0.63	4	0.940	10
Switzerland	0.62	5	0.955	2
Sweden	0.62	6	0.945	7
Netherlands	0.61	7	0.944	8
Australia	0.61	8	0.944	8
Germany	0.60	9	0.947	6
Singapore	0.59	10	0.938	11
Ireland	0.59	11	0.955	2

Source: Author's calculation

4.2. Sensitivity and Robustness

In terms of constructing a composite index, it is essential to conduct sensitivity and robustness analysis to mitigate the risk of creating meaningless composite indicators. There are several steps that may be applied to assist in measuring the robustness of the composite indicators and enhance transparency (OECD, 2008). However, this study chooses to establish the analysis by omitting three indicators, namely access to finance, gender equality, and income inequality, considering that the data are incomplete in some countries. The result for the reconstructed I-SDI and the initial I-SDI is presented in Table 5. The finding indicates that countries in the top level of initial I-SDI are not sensitive to the change of indicators. Regardless of the ranking shift, these countries remain in the top position with a small difference between the initial ranking and the new ranking. However, a number of countries such as Türkiye, Iraq, Comoros, Afghanistan, and Uzbekistan are strongly sensitive to this treatment. Particularly, the average absolute score of the difference between the initial ranking and the reconstructed ranking is 5.3, confirming that the changes in rank are not very large – the major alteration is experienced by Comoros with 21 differences compared to its initial ranking, while some countries maintain in the same position. Presumably, the alteration to the higher position is due to the fact that initially, these countries perform very poorly in excluded indicators, while these indicators are considered to have a great influence on the dimension. Comoros, Djibouti, Afghanistan, and Uzbekistan have low accessibility to finance and high-income inequality. Thus, neglecting these indicators is an advantage for their overall ranking. Türkiye, Kazakhstan and Albania are considered to have a good performance in these excluded indicators. Therefore, it gives disadvantage for these countries. Regardless of the sensitivity result, this study consistently proposes the initial indicators for the final index of I-SDI based on our justification as presented in Table 1. In addition to this, the correlation between the initial I-SDI rank and the reconstructed I-SDI rank is found

to be strong. The coefficient correlation is 0.898 and hence the I-SDI is robust. Table 5 shows the result of the difference and rank correlation between the initial I-SDI and reconstructed I-SDI.

Table 5.
The Rank Differences of Initial I-SDI and Reconstructed I-SDI by Omitting Access to Finance, Gender Equality, and Income Inequality Indicator

Country	I-SDI		Reconstructed I-SDI		Rank Differences
	Value	Ranking	Value	Ranking	
United Arab Emirates	0.60	1	0.54	2	-1
Qatar	0.58	2	0.54	1	1
Oman	0.58	3	0.51	5	-2
Malaysia	0.57	4	0.51	4	0
Maldives	0.56	5	0.49	8	-3
Kuwait	0.56	6	0.50	6	0
Brunei	0.55	7	0.52	3	4
Bahrain	0.55	8	0.49	7	1
Uganda	0.53	9	0.45	11	-2
Bangladesh	0.53	10	0.45	14	-4
Kazakhstan	0.52	11	0.42	20	-9
Jordan	0.52	12	0.44	15	-3
Saudi Arabia	0.51	13	0.47	9	4
Mali	0.51	14	0.45	13	1
Gambia	0.51	15	0.45	12	3
Algeria	0.51	16	0.43	16	0
Indonesia	0.48	17	0.42	17	0
Albania	0.48	18	0.41	27	-9
Morocco	0.48	19	0.45	10	9
Tunisia	0.48	20	0.42	23	-3
Mauritania	0.47	21	0.42	19	2
Senegal	0.47	22	0.40	32	-10
Pakistan	0.47	23	0.42	21	2
Iraq	0.47	24	0.39	40	-16
Benin	0.47	25	0.42	18	7
Iran	0.46	26	0.41	24	2
Burkina Faso	0.46	27	0.41	26	1
Guyana	0.46	28	0.40	33	-5
Nigeria	0.46	29	0.39	36	-7
Egypt	0.46	30	0.42	22	8
Mozambique	0.46	31	0.41	30	1
Kyrgyz Republic	0.46	32	0.39	41	-9
Azerbaijan	0.45	33	0.39	37	-4
Türkiye	0.45	34	0.37	47	-13
Sierra Leone	0.45	35	0.40	34	1
Niger	0.44	36	0.40	31	5
Togo	0.44	37	0.38	42	-5
Cote d'Ivoire	0.44	38	0.37	48	-10

Table 5.
The Rank Differences of Initial I-SDI and Reconstructed I-SDI by Omitting Access to Finance, Gender Equality, and Income Inequality Indicator (Continued)

Country	I-SDI		Reconstructed I-SDI		Rank Differences
	Value	Ranking	Value	Ranking	
Guinea	0.43	39	0.38	44	-5
Cameroon	0.43	40	0.38	43	-3
Lebanon	0.42	41	0.41	29	12
Djibouti	0.42	42	0.41	28	14
Suriname	0.41	43	0.39	38	5
Gabon	0.41	44	0.34	52	-8
Tajikistan	0.41	45	0.34	53	-8
Comoros	0.40	46	0.41	25	21
Yemen	0.39	47	0.35	50	-3
Afghanistan	0.39	48	0.39	35	13
Syria	0.39	49	0.38	46	3
Guinea-Bissau	0.38	50	0.38	45	5
Chad	0.38	51	0.34	54	-3
Uzbekistan	0.37	52	0.39	39	13
Sudan	0.37	53	0.37	49	4
Turkmenistan	0.36	54	0.35	51	3

Source: Author's calculation

Table 6.
Difference and Ranking Correlation Between I-SDI and I-SDI Reconstructed

Ranking Change	Value
Maximum	21
Minimum	-16
Mean (absolute value)	5.333
Standard deviation	7.121
Rank correlation	0.898

Source: Author's calculation

4.3. Link Between I-SDI and Other Related-Development Measures

The objective of this study is to build an index to measure the socioeconomic development in Muslim countries based on Ibn Khaldun's model of development. To be informative and non-redundant, Branisa et al (2009) suggest conducting an empirical analysis of its relations with other related indices. Therefore, this section seeks to identify whether there is a linkage between I-SDI and other variables as well as the existing measures related to development. This study undertakes the correlation analysis by adopting the correlation coefficient of 0.70 in absolute value as the threshold value to differentiate redundancy and non-redundancy as proposed by McGillivray & White (1993). According to Omar & Sleiman (2021), three methods of coefficient correlation analysis are widely employed in order to conduct the sensitivity analysis, namely Pearson's correlation coefficient, Spearman's rank correlation coefficient, and Kendall's rank correlation coefficient

(Tau-b). However, the latter two are mostly used to estimate the redundancy. Ultimately, this study decides to utilize Kendall Tau-b for the correlation test. The result of correlation analysis of Ibn-Khaldun-Based Socioeconomic Development Index (I-SDI) in respect to other measures are shown in Table 7. This study further carries out comparison with HDI (UNDP (United Nations Development Programme, 2020b), Islamicity Index (Askari, 2019), Sustainable Development Index (Sachs et al., 2020), Multidimensional Poverty Index (UNDP (United Nations Development Programme, 2020a), and Happiness Index (Helliwell et al., 2020).

The calculation of Kendal Tau-b shows that the value is lower than 0.70 and statistically significant. Obviously, the I-SDI based on Ibn Khaldun's model is linked to these development measures, but it is not redundant. According to this finding, the absolute value of correlation coefficient between I-SDI and the Multidimensional Poverty Index is found to be the lowest, while the highest correlation is observed between I-SDI and Islamicity Index. The correlation between I-SDI and HDI is sufficiently low with the correlation coefficient of 0.374. It, therefore, can be inferred that Ibn Khaldun's model of development-based I-SDI fundamentally depicts a different picture and covers different aspects in terms of measuring the development. Also, it certainly gives new information related to the development in Muslim countries.

Table 7.
The Correlation of Ibn-Khaldun-Based Socioeconomic Development Index (I-SDI) With Existing Development Measures

Measures	Kendall Tau-b (Absolute value)	p-value	No. of Obs.
HDI	0.374	0.000	54
Islamic City Index	0.447	0.000	46
Sustainable Development Index	0.259	0.008	52
Multidimensional Poverty Index	0.135	0.253	37
Happiness Index	0.260	0.016	43

Source: Author's calculation

4.4. Regression Analysis

As for the functionality of the Ibn Khaldun-based socioeconomic development index (I-SDI), this study further identifies whether this index can act as a driver for another variable by conducting a linear regression analysis. In this attempt, the study chooses poverty line (percentage of total population) as the dependent variable, taking into account that it is widely used to reflect a deprivation in welfare as the outcome of inability to fulfill the human basic needs, such as health, education, and housing. Poverty also represents the low living condition of the people in a nation such as low levels of health and education, low access to electricity and basic service, poor sanitation, and low access to drinking water. Meanwhile, other variables such as foreign direct investment (FDI) as the percentage of GDP, inflation rate, household final consumption in constant 2015 prices (annual change, %), and unemployment rate are utilized as control variables. The result of the regression analysis is displayed in Table 8 below.

Based on this finding, I-SDI negatively and significantly affects poverty at 1 percent level, confirming that the poverty issue rises due to the substantial decline of development in various aspects of life in Muslim countries. The coefficient of determination of the regression model is 0.197, indicating that there could be some omitted variables from the model. In other words, poverty may be explained more by other variables that are non-included in the model. While several control variables have been added to the model, it is not likely to solve the issue. However, this finding is sufficient to justify that I-SDI based on Ibn Khaldun's model of development does measure development.

Table 8.
Regression Analysis Result of I-SDI as Independent Variable

	Coefficient	Standard Error	T	p-value
I-SDI	-129.884	45.542	-2.852	0.007
FDI	0.156	0.537	0.291	0.773
INF	0.004	0.005	0.685	0.498
HHC	0.215	0.143	1.507	0.141
UNEMP	-0.703	0.418	-11.684	0.101
Constant	92.504	22.592	4.090	0.000
Number of observation	40			
Adjusted R2	0.197			
Prob > F	0.025			

Source: Author's calculation

V. CONCLUSION

This study attempts to construct a new measure of socioeconomic development from the perspective of Islam by implementing the concept of Ibn Khaldun's theory of development as interpreted by Chapra (2008). According to Chapra, Ibn Khaldun's model is a powerful model to answer some of the most crucial issues in the rise and fall of the Muslim world and calls it as a multidisciplinary-dynamic theory of development. In this model, factors such as people (N), development (g) and justice (j), state (G), Shariah (S), and wealth (W) are considered. Accordingly, three dimensions are proposed to represent these factors and used to build a composite index called Ibn Khaldun-based socioeconomic development index (I-SDI). The first dimension is called human empowerment and it consists of five indicators. The second dimension is government and institution with five indicators and the last is economic growth dimension, consisting of three indicators. The equal-weighted approach is further employed for the scoring purpose, considering that each dimension and indicators are equally substantial, while the additive aggregation is employed for aggregation procedure.

Based on the estimation, it is found that Muslim countries that perform greatly in government and institution dimensions tend to experience a better socioeconomic development. United Arab Emirates, Qatar, Oman, Malaysia, Maldives, Kuwait, Brunei, and Bahrain are countries with the highest value of I-SDI. Together with the great achievement in government and institution, these countries also perform greatly in at least one of the other two dimensions.

Meanwhile, Muslim countries with extremely poor government and institution are placed in the bottom rank. They have low values in both human empowerment and economic growth. This result is in line with what has been explained by Chapra (2008) using Ibn Khaldun's model of development that political illegitimacy is the trigger of the decline in Muslim countries. High levels of corruption, incompetent and ineffective government, and low level of freedom of political participation in a number of Muslim countries gradually interact with other aspects of human beings in a negative direction and generate a decline. The result also suggests that many Muslim countries are still categorized as a low productivity group in terms of their income and I-SDI. In other words, many Muslim countries are having low income and achieve low I-SDI. When comparing the result with ten selected high-ranked countries in HDI, the result also shows that the ranks of all Muslim countries are positioned below, except the United Arab Emirates. The findings of this study offer several implications. Of utmost importance is the need to improve the quality of government or the application of good governance in Muslim countries, as this study shows that most countries in the highest rank have good performance in government and institution dimension. Additionally, Muslim countries should prioritize allocating a considerable portion of their GDP towards health and education expenditures, given the pivotal role of these indicators in fostering human empowerment. Furthermore, it is crucial for Muslim countries to enhance citizen access to financial institution and encourage them to have financial accounts.

Since the statistical result shows that I-SDI is non-redundant, it is believed that this proposed composite index delivers additional information regarding the decline and development in Muslim countries. At the same time, it can be utilized as an alternative tool for measuring the development in Muslim countries. The result from the regression analysis indicates that I-SDI negatively and significantly affects poverty, confirming that poverty may decline when the socioeconomic development in Muslim countries increases. Ultimately, this result denotes that Ibn Khaldun's model of development is exceptionally meaningful in explaining the performance of an economy in the present day, particularly in Muslim countries. Therefore, while Muslim countries typically rely on internationally recognized and standardized frameworks to assess and evaluate the performance of their countries, as the frameworks provide a common and universally applicable assessment across countries, the feasibility of utilizing this proposed composite index as an alternative should be further explored, given its incorporation of multidisciplinary indicators.

Some limitations of this research are noteworthy. First, the selection of indicators in each dimension and the equal weighting approach are arbitrary in nature. Thus, it could sprout bias due to dealing with the information that is statistically difficult to estimate. Another statistical method of weighting and aggregation may be applied for further research in order to identify the variables and quantify the weight of each variable in more detail. Second, it should be noteworthy that omitting some indicators from the composite index generates shifting in the final ranking. Thus, it is presumed that the addition of other indicators may also affect the overall ranking. Further investigation is needed to find out this case. Third, it also may be more useful to use microdata for some variables to produce a more comprehensive

composite index of I-SDI. For instance, utilizing microdata of account ownership or related access to finance data from the Global Findex Database World Bank may be more fruitful to understand the situation at the individual level.

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