Introducing an Islamic Human Development Index (I-HDI) to Measure Development in OIC Countries

MB HENDRIE ANTO•

Abstract

Human development and welfare of human being has a pivotal place in Islamic development concept. Majority of Islamic scholars come to the conclusion that the objective of the Sharīʿah (Maqāṣid al-Sharīʿah) is to promote well-being of all mankind, which lies in safeguarding faith, their human self, their intellect, their posterity and their wealth. Consequently, the human development in Islamic perspective must be based on Maqāṣid al-Sharīʿah.

The existing Human Development Index (HDI) published by UNDP might be the most comprehensive indicator, but is not fully compatible and sufficient for measuring human development in Islamic perspective. The underlying theory and concept to develop HDI is not based on Maqāṣid al-Sharīʿah. Measuring human development level of Muslim *countries would be more appropriate by using a specific Islamic Human Development Index (IHDI). This paper is aimed to (i) construct a new measurement of human development under Islamic perspective, and then (ii) simulate this index to measure human development level in OIC countries*

The findings show that the rank composition between I-HDI and HDI is slightly different. On one hand, a number of countries enjoy a better rank in I-HDI compared with HDI. On the other hand, several countries suffer a marked deterioration of rank. The high score group in I-HDI is still

• Director Center for Islamic Economic Development and Studies (CIEDS), Economic Faculty, Islamic University of Indonesia. Email: hendrie@fe.uii.ac.id. The 1st version of this paper has been presented in Langkawi Islamic Finance and Economics International Conference (LIFE 1), 2009.

dominated mostly by Middle East Countries and the bottom line is still dominated by African Countries. In general, the contribution of material welfare index (MWI) in the whole I-HDI is superior which indicate the importance of material resources.

Keywords: economic development, welfare, *maqāṣid* Sharīʿah, human development

1. Introduction

Islamic perspective on economic development is unique and original which is totally different from the conventional views, specifically in its fundamental base. The objective of economic development in Islamic perspective is to achieve a comprehensive and holistic welfare both in the world and the hereafter (*akheerah*). It is called *falāḥ.* Based on this objective and other characteristics of Islamic economic development, the conventional indicator of economic development is insufficient to measure the level of economic development in Muslim countries. This paper is aim to propose a new model for measuring economic development in Islamic perspective which is called Islamic Human Development Index (I-HDI), and then simulate it to the case of OICs members. This I-HDI is considered within the framework of the *Maqāṣid* al-Sharīʿah, which is basically concerned with the promotion of human wellbeing through the preservation of self, wealth, posterity intellect and faith

I-HDI is composite index of several indicators derived from five basic needs within the framework of *maqāṣid* Sharīʿah. Given the multidimensional and complex feature of development in Islam, it is difficult to feature non-quantifiable variables like freedom, religiosity and family values in a more adequate measure of human development. Nevertheless, the I-HDI combines both quantitative variables and variables expressing perceptions. It mixes different types of indicators: input and output, stock and flow, single and composite. Admittedly difficult, but this is indeed the nature of the phenomenon for which the study is aiming to provide a measurable proxy. After all, development is a complex thing.

The first part of this paper discuss the concept of economic development and its measurement in the conventional economic, in then followed by the same theme in the Islamic Economic. The methodology to construct I-HDI is demonstrated in the third part of this paper, and then the implementation I-HDI to measure the level of

development in OICs will be the following part. Finally, this paper will be closed with conclusion and suggestion.

2. The Evolution of Development Measures: Transition from Single to Composite Index

Toward a more comprehensive definitions of economic development

The world has been witnessing the evolution of the development measures since three decades ago following the profound change in the perception and definition of development itself. Indeed, the concept of development has been become a complicated and unconcluded discussion in secular economics. It is easier to say what development is not than to spell out what really is (Meier, pp. 5-6). In general, however, a simple and strict definition of development has been modified by a more comprehensive, multidimensional and flexible definitions.

Prior to the 1970's, economic development was by and large evaluated in terms of the gross national product [GNP] and per capita income, which stood alone as the ultimate standard of national progress and prosperity. According to this approach, development means 'the capacity of a national economy, to generate and sustain an annual increase in its gross national product [GNP] at rates of perhaps 5% to 7% or more' [Todaro1997]. Implicit in this analysis is the notion of utility and its positive relationship with income. However, given the difficulty of quantifying utility, expediency and practicality dictated a shift from the foundational concern with utility to a practical involvement with income statistics and evaluations based on it. Hence, the dominance of GNP and per capita-income as indicators of economic development, particularly during 1970s after which some alternative approaches also emerged.

Following above approach, economic growth and the growth rate of per capita GNP became the main focus and goal of development. The problems of poverty and inequality were ignored, with a tacit assumption that when per capita GNP raises everyone becomes better off. Evidence to the contrary was dismissed with assurances that the benefits of economic development would, invariably 'trickle down' to all. Kuznets (1955) stated his hypothesis whereby income distribution tends to deteriorate in the initial stages of development but improves in the final stages.

It is generally easier to reach consensus about the need to maintain a high growth rate, than about maintaining a good distribution. The 'trickle down' process

was in a big question. Many developing countries though realized their economic growth targets but the living conditions of the masses of people remained for the most part unchanged. As such, during the 1970s substantial work appeared on development as 'growth with equity' or 'redistribution from growth'. This differed from the earlier views in significant ways, especially in bringing to the fore the issues of deterioration in the relative income position of the poor, growth of unemployment, and increase in the number of impoverished, etc. Alesina and Rodrick (1994) or Persson and Tabellini (1994) argued that an unequal income distribution sets in motion social and political forces that push for capital taxation with the aim of effecting redistribution or social spending but with negative consequences for investment and growth; in other words, an unequal distribution tends to retard growth.

For other authors [see Solimano (2000), Deininger and Olinto (2000)] a bad income distribution tends to generate social conflicts that may destabilize institutions reducing consumption, investment, and growth; the implication is that a bad income distribution is not sustainable. Barro (1999) found that the empirical relationship depends on the level of income. Higher income inequality retards growth in poor countries but not in rich countries.

Consequently, a new view of development emerged. International organizations now recognize that human development goes beyond economic growth and is a multidimensional phenomenon covering all aspects of well-being. This partly dates from Sen's work on social justice and inequalities (Sen, 1985, 1992), which inspired a new concept of development. Later, Sen's capability approach contributed to the design of the UNDP Human Development Index (HDI) in 1990, which was intended as a more comprehensive indicator than per capita income for comparing the well-being of countries. Todaro aptly puts in the following words:

'Development must therefore be conceived of as a multidimensional process involving major changes in social structures, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty. Development in its essence, must represent the whole gamut of change by which an entire social system, tuned to the diverse basic needs and desires of individuals and social groups within that system, moves away from a condition of life widely perceived as unsatisfactory toward a situation or condition of life regarded as materially and spiritually better' [Todaro 1997, p.16].

Measuring development: from single to composite indexes

Following the changes in perception and definition of development, the measurement of development was also change. The traditional single indicator such as economic growth or GNP percapita has been perceived as insufficient to measure economic development performance. Attempts has been made in the 1970s to construct socio-economic indicators as an alternative to GDP per capita, which was criticized as capturing neither distributional aspects nor social and human welfare dimensions (Desai, 1991). There have since been numerous efforts to create other composite indicators that could serve as complements or alternatives to the traditional measure. A number of economists expounded the incorporation of social indicators as alternative measures of development.

Adelman and Morris 1967 conducted an early major study that sought to measure development in terms of a pattern of interaction among social, economic, and political factors. Another study, carried out in 1970 by the United Nations Research Institute on Social Development Geneva [UNRISD] as concerned with the selection of the most appropriate indicators of development and an analysis of the relationship between these indicators at different levels of development. The result was a construction of a composite social development index with nine economic and nine social characteristics (McGranahan 1972; Hicks and Streeten 1979).

A major effort in this direction was the development of a composite 'Physical Quality of Life Index' [PQLI]. This index was based on a country's life expectancy, infant mortality rate, and literacy rate [Morris 1979]. Later attempts to construct a measure of social welfare include Camp and Speidel's (1987) International Human Suffering Index, which combined ten measures including income, infant mortality, nutrition, adult literacy, and personal freedom (Srinivasan 1994). Also Slottje's (1991) study of 130 countries, which appears to have been written before the release of the HDR 1990, drew on the capabilities approach by constructing a composite of 20 indicators, arguing that Morris' three components were insufficient to capture the quality of life.

In 1990 the United Nations Development Programme (UNDP) began regular publication of several indices in its annual Human Development Report. The first of these indices, and probably the most popular, is the Human Development Index, HDI. It combines three components or dimensions equally weighted: GDP per capita, life expectancy and a measure of the level of literacy. The HDRs have since featured the construction and refinement over time of the HDI. The new human

development approach seeks to 'put people back at the centre of development' [HDR 1995, p.11]. The HDI is basically devised as a way of indicating the degree of achievement of the goals of this approach. It is a summary, not a comprehensive measure of human development and the search for further methodological and data refinements to the HDI continues [HDR 2001].

The HDI has, however, not escaped criticism. Some criticisms of the HDI can be found in McGillivray (1991) who early on questioned both the composition and the usefulness of the HDI as a development indicator or as a measure for intercountry comparisons. A suggestion to complement the HDI with distributional aspects was put forth by Hicks (1997), involving the Gini coefficients in the calculation of the HDI, not only for income per capita, but also for the other two dimensions, educational attainment and longevity. Streeten (2000) questions not only the arbitrariness of weights of the three components, but also what is included and what is excluded. Others contend that the HDI reflects its aims imperfectly and does not capture the rich content of the human development concept, leaving out other important aspects such as freedom and human rights, autonomy and self reliance, independence and sense of community, environmental concerns, etc. [See, for example, Fergany 2002, Dasgupta 1995, Noorbakhsh, 1998]

In response to criticism in the sense that the three dimensions chosen for the HDI were incomplete and could leave out many important variables, or did not cover them inadequately, UNDP began publishing alongside the HDI a variety of indices, some with possible overlaps; for example, the Human Poverty Index (HPI-1 and HPI-2), Gender Development Index, Gender Empowerment, etc. Unfortunately, though these indices complement the HDI's explanatory power, they have not been widely used [Kovacevic, 2011].

The improvement of development measures has never been stop until nowadays, either improving the existing measures or developing new measures. Some recent attempts tried to adjust the existing HDI to some more specific aspects, including, inequality (Alkire and Fosterr, 2010), environment and sustainability (Neumeyer, 2001), moral (Dar and Otiti, 2002) health (Engineer, et.al, 2009), and family (Bagolin, 2008). Berenger and Verdier Chouchane (2007) has proposed a different multidimensional index, though they still used Sen's capability approach as well as HDI. Among these attempts, Islamic perspective on development seems still attract little attention to be used as a foundation to develop a specific index to measure development in Muslim countries

3. Islamic Perspective on Economic Development

Islamic perspective on economic development must be based on the holistic view of Islamic teaching itself. Human development and welfare of human being has a pivotal place in the whole Islamic teaching. The Holy Qur'ān and the *Sunnah* reveal an overriding interest in the overall welfare of mankind (e.g. Qur'ān, 2:201), and so unanimous Islamic scholars come to the conclusion that the objective of the Sharīʿah (*Maqāṣid* al-Sharīʿah) is to promote well-being of all mankind and relief from hardships. In defining *Maqāṣid* al-Sharīʿah, Chapra 2000 quotes the medieval Islamic philosopher, Ghazali (d.505/111) as follows:

> 'The objective of the Sharīʿah is to promote the well-being of all mankind, which lies in safeguarding their faith, their human self, their intellect, their posterity and their wealth. Whatever ensures the safeguard of these five serves public interest and is desirable' [p.118].

Development or economic development then should be consistent with this central objective of the Sharīʿah. The enrichment of faith *(ad din)*, human self (*an nafs*), intellect *(al ʿaql)*, posterity (*an nasl*) and wealth (*al māl*) should become the main focus of all human endeavors and development. The fulfilling of these five basic needs will be the condition for achieving welfare and happy living in the world and hereafter which is called *falāḥ.* The welfare in the worldly life is temporary meanwhile the welfare in the hereafter is eternal and permanent (Qur'ān, 87:16-17, 9:38), so *falāḥ* is a comprehensive and holistic concept of human welfare ((Qur'ān, 2: 201, 28:77).

Thus, in keeping with the *Maqāṣid* al Sharīʿah, Hasan (1995, 2006) stated that the Islamic concept of development centers around two broad aspects of life, the material and moral. Islam recognizes two types of wants for man: (i) the mundane, that is, for consumption of material things and therefore also for facilities of producing them in abundance, and (ii) spiritual, that is, the moral, ethical and social aspect of life. This permits full and free expression to the humanistic urge to choose ideals-moral, ethical, and social-and to work for achieving them, to create not only what nature does not provide but beauty in the widest sense of the world, and cultivate love expressed in willingness to make sacrifices of highest order. Those two types of wants may look conflicting, but they are basically interrelated and interact in unity for human existence.

In line with above definition, but using different expression, Sadeq (2006)

defines Islamic economic development as a balanced and sustained improvement in the material and non-material well-being of man. He depicts development as multidimensional process that involves improvement of welfare through advancement, reorganization and reorientation of the entire economic and social systems, and through spiritual uplift, in accordance with Islamic teachings. Three key words are found in this definition: balance, sustain, and multidimensional. The composite life of human beings is a complete whole, Islam desires welfare of this composite life.

Ahmad (2006) underlines the philosophical underpinnings of Islamic approach to development are: (i) *Tawḥīd*, (ii) *Rububiyyah*, (iii) *Khilāfah*, (iv) *Tazkiyah*. Based on this approach, the economic development will have a comprehensive character and includes moral, spiritual and material aspects. The center of economic development is human resource development as per the Islamic value system through expansion of useful production, improvement of the quality of life, balance development, development of technology suited to conditions of Muslim countries, and reduction of outside dependence and greater integration of Muslim world.

Whatever the definition, it is convenient that the definition should have certain characteristics that will make it more acceptable and workable (Montenegro). First, it is operational, meaning that it should be possible to use the definition in practice, which it not is extremely theoretical or abstract or devoid of empirical applicability; second, it is relative, meaning economic development should be measured or calibrated with respect to levels achieved by other countries; economic development is not an absolute concept but a relative one. Finally, the definition should be general and easily acceptable, which implies that its construction combine the minimum number of elements, dimensions or variables; there is a direct relationship between the number of variables included and the loss of consensus.

Following the above rules, it can be said that the objective economic development in Islamic perspective is to achieve both material welfare and non-material welfare in order to get holistic and comprehensive welfare in world (temporary welfare) as well as in the hereafter (permanent welfare). This can be expressed in functional form as follows:

$$Wh = f(Wt, Wp) \quad (1)$$

$$Wh = f(Wm, Wn) \quad (2)$$

Here Wh is holistic and comprehensive welfare, Wt and Wp are welfare in the

temporary and permanent stage of life, Wm and Wn are material welfare and non-material welfare, respectively.

Introducing Islamic Human Development Index (I-HDI)

The concept of Human Development Index (HDI) by UNDP has been gaining popularity as a comprehensive measurement for development since it was introduced in the first global Human Development Report in 1990. Human development is the center of economic development objective in Islamic perspective (Ahmad, 2006) and so HDI is very useful, however, HDI is not fully compatible and sufficient for measuring economic development in Islamic perspective. We must construct our own economic development index based on our own perspective.

The fulfillment of five basic needs in *maqāṣid* al Sharīʿah will be the theoretical foundation for developing this Islamic Human Development Index (I-HDI). Hence, we propose five dimensions for I-HDI. These dimensions measure both performance of material welfare (MW) as well non-material welfare (NW). *First* is the materialistic one which relates to the performance in fulfillment of property (*māl*) needs. Islam highlights the importance of property ownership as well as its distribution among society as a mean for achieving *maṣlaḥah* and then *falāḥ*. The Islamic system would probably prefer a relatively lower level of property ownership with a better distribution of income/wealth as compare with high level of property ownership but with a bad distribution of income/wealth (Qur'ān *Sūrah al-Hashr Sūrah* 59, *Āyah* 7). The higher the property ownership and its distribution, however, the better the level of material welfare.

The second relates to all non-directly related to material things but fundamental for achieving *maṣlaḥah* or here it is called Islamic environment and values (IEV). These are all related to *an nafs, al ʿaql, an nasl, ad din* in *maqāṣid al Sharīʿah*. The longer the life, the better, as a longer life could be assumed to be a wider opportunity for doing many good things that benefit for achieving *maṣlaḥah*. Knowledge and science has pivotal position for development, so that all of society members should deserve education. Development process will be more efficient and effective if family and social relationship among society members is harmony. Family also takes an important role in building next generation which is important for sustaining development. And finally, the role of religiosity of society is undebatable in Islamic perspective.

Following above theoretical foundation, the development in Islam can be expressed as follows:

Wh	= f (MW, NW)	(3)
MW	= f (PO, DE)	(4)
NW	= f (IEV)	(5)
IEV	= f (LE, E, FSR, R)	(6)

Where:

Wh	:	holistic welfare
MW	:	material welfare
NW	:	non material welfare
PO	:	property ownership
DE	:	distributional equity
IEV	:	Islamic environment and values
LE	:	life expectancy
E	:	education
F	:	family and social relationship
R	:	religiosity

The next stage is taking indicators which is measurable for those all dimensions. The proposed indicators are showed in table 1.

Table 1

Objective of Dev.	Dimensions of Dev.	Dimension Indices
Maṣlaḥah	Faith	Faith Index
	Life	Life Index
	Science	Science Index
	Family-social	Family-social Index
	Property	Property Index
	Freedom	Freedom Index
	Justice	Justice Index

Figure 1

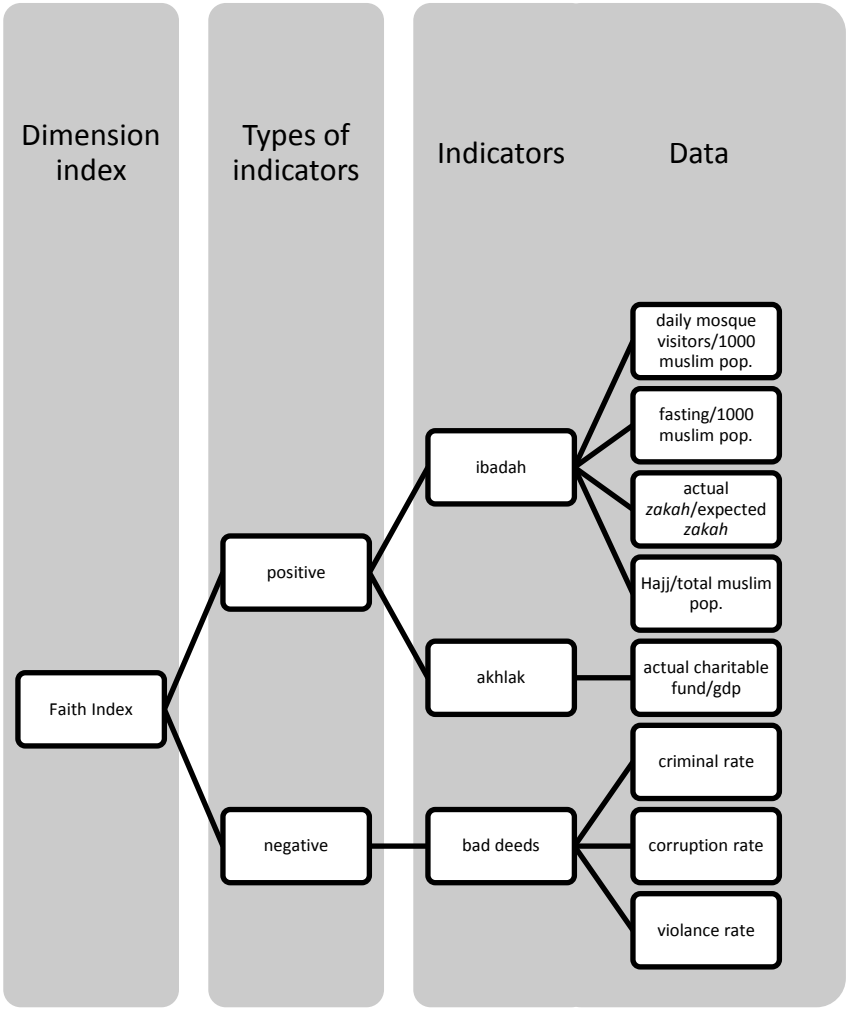
Dimension index
Types of indicators
Indicators
Data
Faith Index
positive
negative
ibadah
akhlak
bad deeds
daily mosque visitors/1000 muslim pop.
fasting/1000 muslim pop.
actual zakah/expected zakah
Hajj/total muslim pop.
actual charitable fund/gdp
criminal rate
corruption rate
violance rate

Figure 2

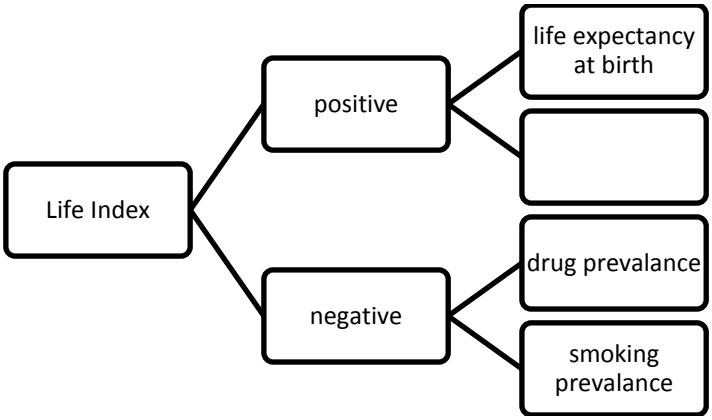

Figure 3

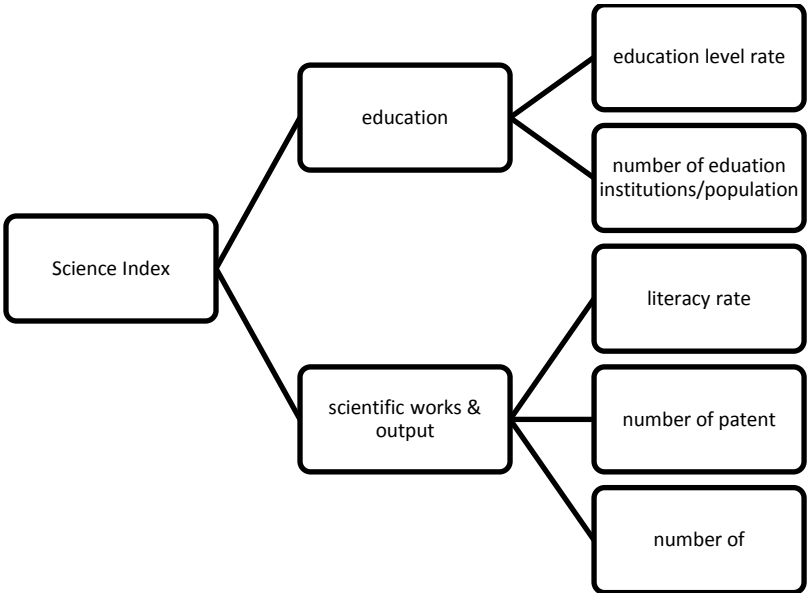

Figure 4

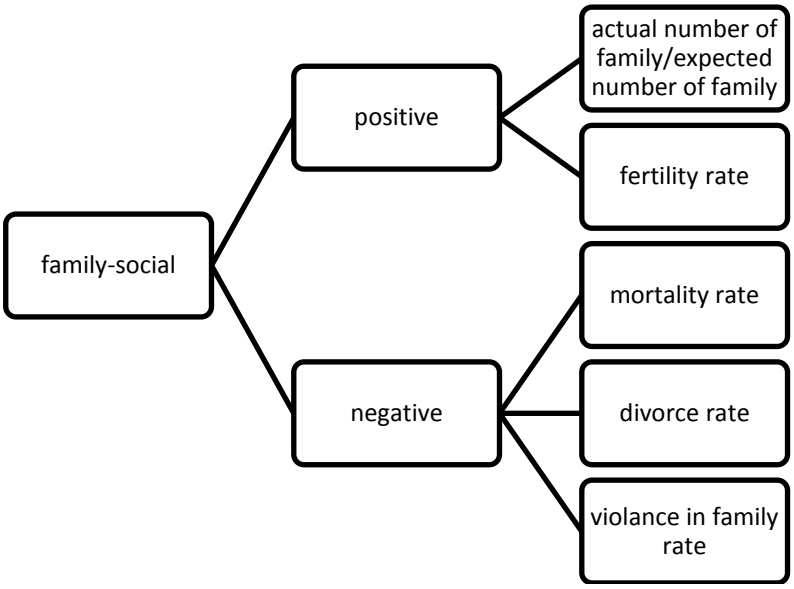

Figure 5

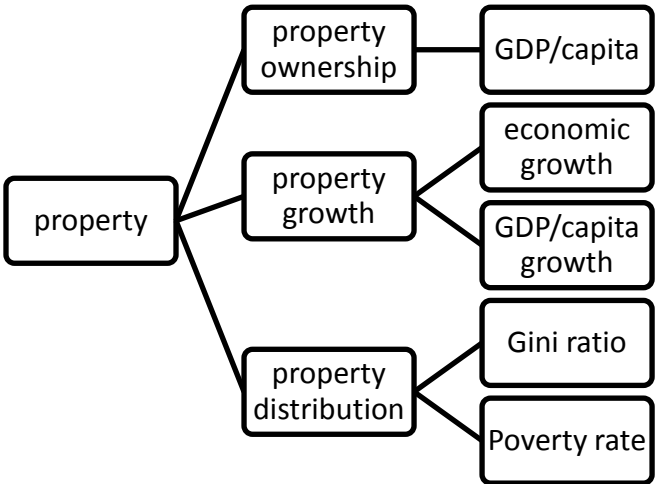

Figure 6

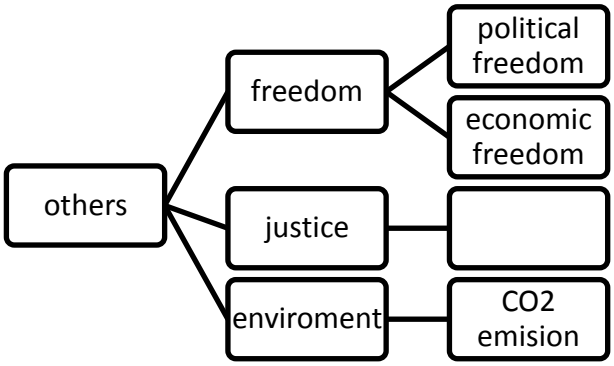

Figure 7

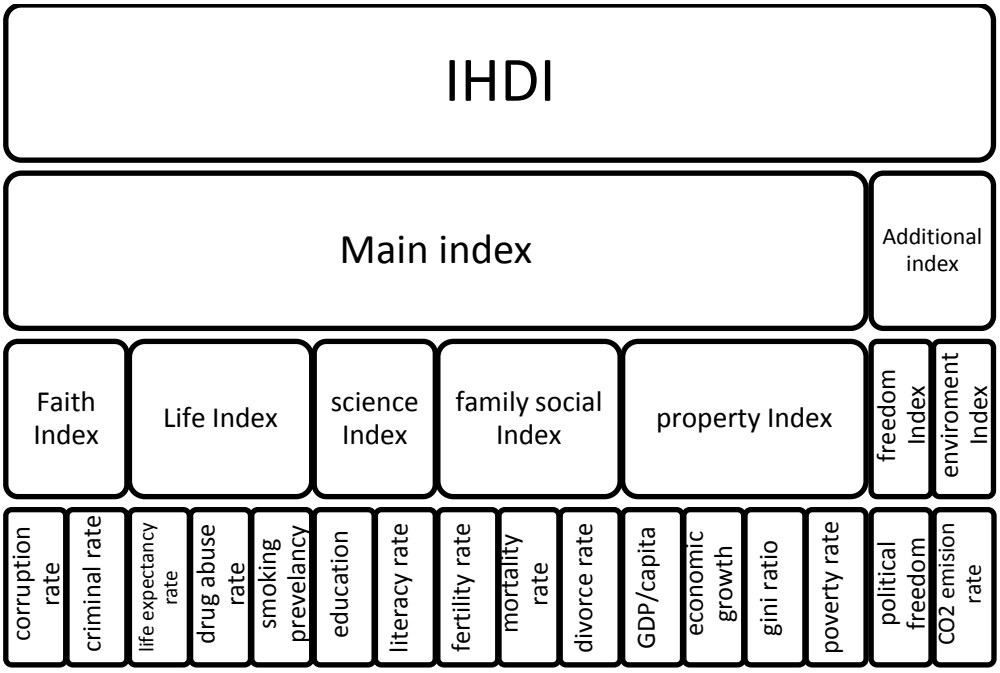

Table 2
Holistic welfare with its proposed indicators

Welfare	Type of Needs	Aspects	Proposed Indicators
Material Welfare Index (MWI)	*Māl*	Property Ownership	GDP Index
		Distributional equity	Gini Index
			Poverty Index
Non-material Welfare Index (NWI)	*Nafs*	Islamic environment & values	Life expectancy index
	ʿAql		Education index
	Nasl		Family-Social Index
	Din		Religiosity Index

As what in other indices, one of the goals of constructing I-HDI is to be able to classify or rank countries by levels of economic development. In applying the definition we will absolutely parallel with the methodology employed in the computation of the United Nations Human Development Index (HDI). Therefore, we will first normalize the data's for each dimension and then, second, take their arithmetic average from the sum of all dimensions. This HDI's methodology is simple, easy to understand, and has been studied extensively. This will also make comparisons with that index simpler (Human Development Report, 2007).

To calculate those dimension indices, minimum and maximum values are chosen for each underlying indicator. Performance in each dimension is expressed as a value between 0 and 1 by applying the following formula:

$$\text{Index Dimension} = \frac{actual\ value - \min value}{\max value - \min value} \qquad (7)$$

Where actual value shows actual value of the dimension of a country meanwhile max value and min value are the maximum and minimum value of the same dimension in the sample of countries (OICs). Adopting HDI calculation method, all negative indicators, for instance Gini coefficient and poverty rate, first will be normalized with this formula (100-Gc)/100 where Gc is the Gini measured in percentage terms. If the Gini is not in percentage terms, that is, between zero and 100, but in decimals, then the normalized Gini will simply become 1- Gc.

Hence, the methodology for calculating I-HDI is as simple as follows, *firstly* calculating each dimension indices, and then *secondly* calculating I-HDI. In sum, I-HDI is the weighted average of material welfare index (MWI) and non-material welfare index (NWI). Here we assume that material welfare has same weight as

non-material welfare, so the expression will be as follows:

$$\text{I-HDI} = 5/6\ \text{MI} + 1/6\ \text{AI} \quad (8)$$
$$\text{MI} = 2/6\ \text{FI} + 1/6\ (\text{LI}+\text{SI}+\text{FSI}+\text{PI})$$
$$\text{AI} = ½\ (\text{FI} + \text{EI})$$

Calculating the Main Index (MI)

MWI measures level of material welfare within population as indicated by property ownership or income as well as its distribution. Adopting indicators from the conventional economics, here MWI is composite index of GDP Index (GI) and Distributional Equity Index (DEI). This is simply an arithmetic average of those two indices.

$$\text{MWI} = ½\ (\text{GI} + \text{DEI}) \quad (9)$$

In calculating GDP Index (GI) we prefer using adjusted GDP percapita (PPP U$) rather than GDP growth or GDP per se. GDP percapita show the potential of the distribution of GDP among population, so it could reflect the property ownership/income among population. We adjust GI with DEI by summing both two indices with same weight to reflex the importance of both GDP percapita and distributional equity as an integral indicator for material welfare. A high GDP percapita wouldn't give a high contribution to material welfare without a good distributional equity, *vice versa*. The GDP Index

$$\text{G I} = \frac{\text{Actual GDP prcapita} - \text{Min GDP percapita}}{\text{Max GDP percapita} - \text{Min GDP percapita}} \quad (10)$$

Distributional equity index (DEI) can be calculated from summation of two sub index, Gini Index and Poverty Index. The Gini coefficient is chosen because of its popularity and because it is regularly found in the World Bank and United Nations publications. Gini coefficient, however, just measures inequality of income distribution but does show the level of poverty, so that we have to add Poverty Index (PI) to have this Distributional Equity Index (DEI). The calculation of Gini Index take two stages, *firstly* normalize Gini coefficient (Gc) and *secondly* use this normalized Gini coefficient (nGc) to calculate Gini Index (GI). Poverty index which is based on poverty rate is calculated by using the same method as Gini Index and finally the Distributional Equity Index (DEI) is the arithmetic average of Gini Index and Poverty Index

$$\text{nGc} = 1\text{-Gc} \quad (11)$$

$$GI = \frac{actual\ nGc - \min nGc}{Max\ nGc - \min nGc} \quad (12)$$

$$nPr = 1\text{-}Pr \quad (13)$$

$$PI = \frac{\text{Actual nPr} - \text{Min nPr}}{\text{Max nPr} - \text{Min nPr}} \quad (14)$$

Calculating Non Material Welfare Index (NWI)

NWI measures level of non-material welfare come from all non-directly related to material things but fundamental for achieving *maṣlaḥah.* NWI is composite index of Life Expectancy Index (LEI), Education Index (EI), Family Social Index (FSI), and Religiosity Index (RI), so this is simply an arithmetic average of those four indices.

$$NWI = ¼ (LEI+EI+FSI+RI) \quad (15)$$

The method for calculating Life Expectancy Index (LEI) and Education Index (EI) as what it is implemented in the HDI calculation can be adopted. The life expectancy index measures the relative achievement of a country in life expectancy while the education index measures a country's relative achievement in both adult literacy and combined primary, secondary and tertiary gross enrolment. For the education index, first an index for adult literacy (ALI) and one for combined gross enrolment (GEI) is calculated. Then these two indices are combined to create the education index (EI), with two-thirds weight given to ALI and one-third weight to GEI.

$$LEI = \frac{\text{Actual life expectancy} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad (16)$$

$$ALI = \frac{\text{Actual adult literacy} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad (17)$$

$$GEI = \frac{\text{Actual Gross enrollment} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad (18)$$

$$EI = 2/3\ (ALI) + 1/3\ (GEI) \quad (19)$$

It is really hard to have an ideal Family-Social Index as well as Religiosity Index. The reasons, at least, are (i) not all of family-social and religiosity aspects are tangible then not perfectly countable. and (ii) if tangible, mostly the availability of data is questionable. Ideally, Family-Social Index could show the condition and performance of society concerning with the family and social values in Islamic perspective. Family and social harmony as, for instance, indicated by a low rate of divorce will be very useful indicator. In the condition of unavailability of this data's, however, fertility rate and mortality rate should serve as proxy for family-social values. A high fertility rate might reflex a strong desire/commitment onto

sustainability of the next generation. It must bear in mind; however, this should be followed by a good quality of birth as indicated by mortality rate. Hence. Family-Social Index (FSI) is calculated from fertility Index (FI) adjusted by mortality Index (MI)

$$\text{FI} = \frac{actual\ Fr - \min Fr}{\max Fr - \min Fr} \tag{20}$$

$$\text{MI} = \frac{actual\ nMr - \min nMr}{\max nMr - \min nMr} \tag{21}$$

Where nMr is normalized mortality rate calculated by using formula nMr = 1-Mr

$$\text{FSI} = ½ (\text{FI} + \text{MI}) \tag{22}$$

For Religiosity Index, ideally we should have indicators which measure the vision, commitment, and implementation of Islamic teaching in a holistic perspective within society. This indicator should cover the fundamental practice of Islamic teaching, for instance, number or percentage of people performing hajj, performing *ṣalāt* (in the mosque), paying *zakāh*, *infāq*, *ṣadaqah*, and *waqf*, doing *saum*, etc which are called ibadah mahdah. In addition to these, religiosity index ideally should show the real behavior of society concerning Islamic values and norm. The latest basically is *ibādah ghoiru mahdah*. In the absence of these data, however, we can take a certain indicator as proxy. While not being exactly the most appropriate measure, Corruption Perception Index (CPI) could serve as proxy as Islamic society must away from corruption, deception, and any kinds of abuse of powers. The Religiosity Index then simply as normalized CPI.

$$\text{RI} = \frac{\text{Actual CPI} - \text{Min CPI}}{\text{Max CPI} - \text{Min CPI}} \tag{23}$$

Data Analysis and Findings

Table 2 reports I-HDI score and rank for the OICs and its comparation with HDI[1]. In general, we witness no significant difference composition between I-HDI and HDI rank for the high score group, specifically the five top score. Brunei Darussalam and Kuwait enjoy an improved rank in the I EDI compared with the

[1] Data on Gini Coefficient and Poverty for a number of countries, including Azerbaijan, Bahrain, Brunei, Kazakhstan, Kuwait, Kyrgyz, Oman, Tajikistan, Turkmenistan, and Uzbekistan are not available. MWI for these countries are based on GDP percapita (PPP US$ only). Meanwhile, Iraq, Palestine, and Afghanistan are totally excluded form the calculation due to no sufficient data available.

HDI wherein Qatar takes over the top position of Brunei Darussalam in the HDI. On the contrary, the position of Qatar and U.A.E decrease from the top to the 3rd and from 3rd to 4th, respectively, in their I-HDI compared with HDI. The position of Bahrain remains stable. Mozambique, Sierra Leone, and Chad shift the position of Iraq, Palestine, and Somalia in the lowest rank group of I-HDI. As what it is found in HDI, most of Middle East countries still dominate high score group in the I-HDI, meanwhile lower group is remain dominated by African countries. The short explanation and argument for this finding is the superior role of material welfare in the development of the I-HDI. Most of Middle East countries are relatively high income countries; meanwhile most of African countries are relatively poor countries.

A number of countries that enjoy better rank in the I EDI are Malaysia, Kingdom of Saudi Arabia (K.S.A), Jordan, Turkey, Tunisia, Suriname, Egypt, Algeria, Indonesia, Syria, Uzbekistan, Kyrgyz, etc. Meanwhile, Oman, Albania, Kazakhstan, Iran, Maldives, Morocco, Comoros, Chad, Sierra Leone, Niger, Mali, Djibouti, Senegal. Togo, etc should accept their lower position in I-HDI. A relatively substantial improvement from HDI rank to the I-HDI could be found in the case of Jordan, Somalia, Algeria, Yemen, Nigeria, Gambia, Palestine, and Tunisia. The inclusion of poverty index into MWI might explain this phenomenon. For instance, Jordan has Distributional Equity Index (DEI) 1 which means the most equitable country within the Oils (see appendix). Moreover, the better position of Jordan might come from their good score of Religiosity Index as their score for Corruption Perception Index (CPI) is relatively high. A bit difference argument could explain the case Tunisia which jump its rank from 16th in the HDI to 11th in the I-HDI. Tunisia has a relatively good score on Distributional Equity Index (DEI) though its GDP percapita is quite low. The corruption rate in Tunisia is relatively low which contribute to a good score for Religiosity Index (RI).

On the contrary, a number of African countries such as Chad, Cote d'Ivoire, Mozambique, Djibouti, and Sudan suffer a relatively significant deterioration in their I-HDI rank compared with the HDI rank. The inclusion of Poverty Index (PI) into Material Welfare Index (MWI) has deteriorated the rank of Chad as their Distributional of Equity Index (DEI) is very low. In addition, Chad has high level of corruption. The explanation for Cote d'Ivoire, Mozambique, Djibouti, and Sudan might be similar. Meanwhile, Uganda becomes the only country with stable rank in addition to Bahrain. Though the GDP percapita of Uganda is not higher than Chad but its income distribution and poverty rate is better. The Religiosity Index (RI) of Uganda is higher as well which support its rank in I-HDI remain stable compared with the HDI.

In addition to I-HDI, it is interesting to look at the Material Welfare Index (MWI) and Non Material Welfare Index (NWI) separately to be more focus on the contribution of each to the whole I-HDI. The rank order of MWI and NWI is slightly difference from I-HDI. Malaysia joint with Brunei, Qatar, Kuwait, and U.A.E take position as the five top ranks in MWI, meanwhile Oman become new comer in the same group for NWI. It is not surprising if several African Countries take the most position in the bottom line as it is widely known that most of them have both low GDP percapita and bad distribution of income. In general, the change of rank composition of I-HDI to NWI is slightly bigger than to MWI.

The pattern of rank composition of I-HDI to be compared with HDI, MWI, and NWI could be also confirmed by its matrix correlation as reported in table 3. It is depicted that every index has strong positive correlation with other indices. The correlation between I-HDI and HDI is strongly positive mostly because of it's the concept and methodology for calculating is in line. It also means that the rank composition of HDI might serve as predictor for the rank of I-HDI.

Compare with NWI, the correlation coefficient between MWI and I-HDI is higher which indicate the superior contribution of material welfare into this holistic welfare. The higher the material welfare, the higher the level of holistic welfare. There might be two reasons for explaining this pattern: *first*, property/income is still being fundamental requirement for developing a good life, education, family and social relationship, and religiosity as well. Moreover, GDP percapita is still powerful as its correlation with MWI, I-HDI, and NWI is strongly positive; *second*, the measurement of NWI might be less appropriate due to lack of proper indicators and data. If the proper indicator and data is available, it would be expected that NWI could contribute more into I-HDI calculation in order to have more equitable weight between material and non-material welfare.

Conclusions and Recommendations

This study has explored a little attempt to construct a specific model for measuring economic development in Islamic perspective. An I-HDI was considered within the framework of the *Maqāṣid* al-Sharīʿah, which is basically concerned, with the promotion of human wellbeing through the preservation of self, wealth, posterity intellect and faith. It is hope that by having I-HDI the performance and level of economic development of Muslim countries can be measured more comprehensively and accurately.

The findings show that the whole rank composition between I-HDI and HDI is slightly difference. In one hand, a number of countries enjoy a better rank in I-HDI compared with HDI. In another hand, several countries suffer a marked deterioration of rank. The high score group in I-HDI is still dominated mostly by Middle East Countries and the bottom line is still dominated by African Countries. In general, the contribution of material welfare index (MWI) in the whole I-HDI is superior which indicate the importance of material in developing the whole welfare. The richer the countries, the higher their whole welfare. Another explanation, however, come from the poor indicator and data available for calculating Non Material Welfare Index (NWI).

A task for further research would be to improve the indicators and quality of the existing data to make them internationally comparable, and to stimulate gathering of the relevant statistics, specifically data for Non Material Welfare Index (NWI). We propose, for instance, used Corruption Perception Index (CPI) in this study as a proxy of Religiosity Index. This proxy is absolutely not sufficient to measure religiosity level in the society, but it is hope that the higher the preciosity level, the lower the corruption level. We should explore of the precise meaning of some of these indicators and then, in the long run, try to produce and provide these data ourselves. For simulation, however, the existing data's now published on World Development Report (WDR), Human Development Report (HDR), IMF Annual Report, Transparency International Annual Report (TIAR), Legatum Prosperity Index (LPI, for family and social index) can utilized to measure I-HDI for OIC countries.

Table 3
I EDI Rank, MWI, NWI and HDI Rank

R	I-HDI		HDI		MWI		NWI	
	country	Score	country	score	Country	score	Country	Score
1.	Qatar	0.901355	Brunei	0.894	Brunei	1	U.A.E	0.82723
2.	Brunei	0.89781	Kuwait	0.891	Qatar	0.981833	Qatar	0.820878
3.	U.A.E	0.88187	Qatar	0.875	U.A.E	0.93651	Bahrain	0.809866
4.	Kuwait	0.855005	U.A.E	0.868	Kuwait	0.925858	Brunei	0.795621
5.	Bahrain	0.782965	Bahrain	0.866	Malaysia	0.764257	Oman	0.788721
6.	Malaysia	0.767044	Libya	0.818	K.S.A	0.758503	Jordan	0.786376
7.	K.S.A	0.724958	Oman	0.814	Bahrain	0.756063	Kuwait	0.784151
8.	Jordan	0.694823	K.S.A	0.812	Turkey	0.64301	Malaysia	0.76983
9.	Oman	0.665014	Malaysia	0.811	Jordan	0.60327	Tunisia	0.697579
10.	Turkey	0.657314	Albania	0.801	Suriname	0.59342	K.S.A	0.691414
11.	Tunisia	0.625631	Kazakhstan	0.794	Kazakhstan	0.583764	Lebanon	0.691285
12.	Suriname	0.619049	Turkey	0.775	Somalia	0.569697	Libya	0.684122
13.	Albania	0.603095	Suriname	0.774	Algeria	0.564009	Albania	0.683981
14.	Kazakhstan	0.599304	Jordan	0.773	Maldives	0.562285	Syria	0.680114
15.	Egypt	0.595928	Lebanon	0.772	Indonesia	0.557143	Turkey	0.671618
16.	Algeria	0.589137	Tunisia	0.766	Tunisia	0.553683	Suriname	0.644679
17.	Syria	0.583857	Iran	0.759	Iran	0.552143	Egypt	0.640821
18.	Indonesia	0.582953	Azerbaijan	0.746	Egypt	0.551036	Palestine	0.635967
19.	Iran	0.582867	Maldives	0.741	Oman	0.541308	Morocco	0.618389
20.	Maldives	0.575977	Algeria	0.733	Uzbekistan	0.523411	Kazakhstan	0.614843
21.	Kyrgyz	0.540019	Indonesia	0.728	Albania	0.52221	Tajikistan	0.614618
22.	Uzbekistan	0.536701	Syria	0.724	Kyrgyz	0.490625	Algeria	0.614265
23.	Lebanon	0.536159	Turkmenistan	0.713	Pakistan	0.488705	Iran	0.61359
24.	Tajikistan	0.52468	Egypt	0.708	Syria	0.487601	Indonesia	0.608764
25.	Morocco	0.52072	Uzbekistan	0.702	Gabon	0.476365	Maldives	0.58967
26.	Libya	0.516532	Kyrgyz Rep.	0.696	Azerbaijan	0.440974	Kyrgyz	0.589414
27.	Azerbaijan	0.504648	Gabon	0.677	Tajikistan	0.434743	Turkmenistan	0.579118
28.	Gabon	0.502685	Tajikistan	0.673	Morocco	0.42305	Azerbaijan	0.568322
29.	Pakistan	0.46984	Morocco	0.646	Bangladesh	0.415486	Uzbekistan	0.549991
30.	Turkmenistan	0.461411	Comoros	0.561	Yemen	0.398447	Gabon	0.529005
31.	Yemen	0.457055	Pakistan	0.551	Lebanon	0.381032	Yemen	0.515663
32.	Bangladesh	0.427781	Mauritania	0.55	Mauritania	0.355736	Mauritania	0.493849
33.	Mauritania	0.424793	Bangladesh	0.547	Libya	0.348941	Comoros	0.47786
34.	Gambia	0.381978	Cameroon	0.532	Turkmenistan	0.343704	Iraq	0.476109
35.	Comoros	0.376764	Sudan	0.526	Cameroon	0.335652	Uganda	0.47545
36.	Cameroon	0.375637	Djibouti	0.516	Nigeria	0.324763	Senegal	0.466922
37.	Somalia	0.36756	Togo	0.512	Gambia	0.312195	Gambia	0.451761
38.	Nigeria	0.354139	Yemen	0.508	Djibouti	0.30733	Pakistan	0.450975
39.	Uganda	0.353466	Uganda	0.505	Benin	0.306066	Togo	0.449699
40.	Benin	0.352107	Gambia	0.502	Guinea Bissau	0.280695	Bangladesh	0.440077
41.	Sudan	0.340885	Senegal	0.499	Comoros	0.275668	Sudan	0.435772
42.	Togo	0.323894	Nigeria	0.47	Guinea	0.258418	Cameroon	0.415621
43.	Palestine	0.317984	Guinea	0.456	Sudan	0.245999	Benin	0.398149
44.	Senegal	0.310874	Benin	0.437	Burkina Faso	0.231522	Nigeria	0.383515
45.	Guinea	0.303731	Cote D'ivoire	0.432	Uganda	0.231482	Guinea	0.349044
46.	Djibouti	0.301988	Chad	0.388	Mali	0.215189	Burkina Faso	0.343148
47.	Guinea Bissau	0.294143	Mozambique	0.384	Togo	0.198088	Mali	0.341798
48.	Burkina Faso	0.287335	Mali	0.38	Cote d'Ivoire	0.178459	Mozambique	0.323634
49.	Mali	0.278494	Guinea Bissau	0.374	Senegal	0.154826	Niger	0.318882
50.	Iraq	0.238055	Niger	0.374	Niger	0.102357	Guinea Bissau	0.307591
51.	Cote d'Ivoire	0.23154	Burkina Faso	0.37	Chad	0.067352	Djibouti	0.296646
52.	Niger	0.21062	Sierra Leone	0.336	Sierra Leone	0.047931	Chad	0.294788
53.	Mozambique	0.184152	Iraq		Mozambique	0.04467	Cote D'ivoire	0.28462
54.	Chad	0.18107	Palestine		Iraq		Sierra Leone	0.238356
55.	Sierra Leone	0.143143	Somalia		Palestine		Somalia	0.165422

Source: HDR 2007, WDR 2007, IDB 2007, *calculated*

Table 4
Matrix correlation HDI-IHDI

	HDI	IHDI	MWI	NWI
HDI				
IHDI	0.941226			
MWI	0.878767	0.963689		
NWI	0.956824	0.908179	0.804348	
GDP pcap	0.74506	0.837438	0.849461	0.756478

Sources: DHR 2007, IDB 2007, WDR 2007: *calculated*

References

Adelman, I and Morris, C.T. (1967), *Society, Politics and Economic Development* (Baltimore): Jolins Hopkins University Press, 1967.

Ahmad, A. (2000), Economic development in Islamic perspective revisited. *Review of Islam Economics.* Leicester: Journal of the International Association for Islamic Economics and The Islamic Foundation,

Ahmad, Khurshid (2000), *Studies in Islamic Economics*, Leicester: The Islamic Foundation.

Ahmad, Khurshid (2001), *Family life in Islam*, Leicester : The Islamic Foundation.

Alesina, Alberto and Dani Rodrik (1994). "Distributive Politics and Economic Growth", The Quarterly Journal of Economics, vol 109, no. 2, pp. 465-490. doi: 10.2307/2118470.

Alkire, Sabina and James Foster, (2010), 'Designing the Equality Adjusted-Human Development Index', *Human Development Research Paper 2010/28*, UNDP

Bagolin, Izete Pengo and Plavio E Comim, (2008), 'Human Development Index (HDI) and Its Family Of Indexes: an Evolving Critical Review', *Revista de Economia*, v. 34, n. 2 (ano 32),

Barro, Robert (1999) Inequality, growth and investment", *NBER Working Paper 7038*, March.

Berenger Valerie and Audrey Verdier-Chouchane (2007), "Multidimensional Measures of Well-Being: Standard of Living and Quality of Life Across Countries", World Development Vol. 35, No. 7, pp. 1259–1276.

Camp S. L. and J. J. Speidel (1987), The International Human Suffering Index, Washington: Population Crisis Committee.

Chapra, M.U. (1992), *Islam and the Economic Challenge*. The Islamic Foundation and the International Institute of Islamic Thought.

Chapra, M.U. (1993), *Islam and Economic Development*. The International Institute of Islamic Thought and Islamic Research Institute.

Chapra, M.U. (2000), *The future of Economics-An Islamic perspective*, Leicester: The Islamic Foundation.

Constructive Proposal', *Ecological Economics*, vol 39

Dar, Humayon A. and Saidat F. Otiti (2002), "Construction of an Ethics-augmented Human Development Index with a Particular Reference to the OIC Member Countries" Economics Research Paper, no. 02-14 Loughborough University, also available at http://creativecommons.org/licenses/by-nc-nd/2.5/

Dasgupta, P (1995), *An inquiry into well-being and destitution*, London : Clarendon Press.

Deininger, K., Olinto, P., (2000), Asset distribution, inequality, and growth, The World Bank Development Research Group Working Paper No. 2375.

Desai, M. (1991). Human development: Concept and measurement. *European Economic Review*, 35(2–3), 350–357.

Development Indicator? *World Development*, Vol. 19, No. 10

Engineer, Merwan H, et.al. (2009), 'Healthy Human Development Index', *Springer Science Business*

Fergany, N (2002), 'In search of an adequate measure of Human Development, an Alternative Human Development Index, AHDI'. *Arab Human Development Report 2002.*

Hasan, Zubair (1997), 'Fulfilment of Basic Needs: Concepts, Measurement, and Muslim Countries Performance', *IIUM Journal of Economics & Management* 5, No.2 Kuala Lumpur: IIUM.

Hasan, Zubair, 1995, " Review of M. U. Chapra's 'Islam and Economic Development' IIUM Journal of Islamic Economics, 4(1 and 2): 61-70.

Hasan, Zubair, 2006, "Sustainable Development from an Islamic Perspective: Meaning Implications and Policy Concerns", Journal of King Abdulaziz University: Islamic Economics, Vol. 19, No. 1, pp: 3-18

Hicks, D. A. (1997), "The Inequality-Adjusted Human Development Index: A Constructive Proposal", World Development, vol. 25, pp. 1283-1298.

Hicks, Norman, and Paul Streeten (1979) 'Indicators of Development: The Search for a Basic Needs Yardstick.' *World Development*, 7

Kovacevic, Milorad, (2011), 'Review of HDI Critiques and Its Potential Improvements', *Human Development Research 2010 Paper/33*, New York: UNDP

Kuznet, Simon (1955), Economic growth and income inequality, *American Economic Review 45*, no.1, (March 1955).

Kuznets, Simon (1966), *Modern economic growth: rate, structure and spread*, New Haven, Conn: Yale University Press.

McGillivray, M. (1991). The Human Development Index: Yet Another Redundant Composite

McGranaham, et al.(1972), *Measurement and Analysis of Socio-Economic Development*, UNRISD, Geneva.

Meier, G.M. and Rauch, J.E. (2000), *Leading issues in economic development* (7th Ed.) New York : Oxford University Press.

Morris, M.D. (1979), *Measuring the condition of the world's poor: the physical quantity of life index*, New York: Pergamon Press.

Neumeyer, Erics, (2001), 'The Human Development Index And Sustainability — A

Noorbakhsh, Farhad, (1998), 'The Human Development Index: Some Technical Issues and Alternative Indices', *Journal of International Development*, Vol. 10

Persson, Torsten and Guido Tabellini (1994), "Is Inequality Harmful for Growth?" American Economic Review, Vol 84, no. 3, pp. 600-621.

Qur'ān, *Sūrah* 59: *Āyah* 7.

Sadeq, Abul Hasan, (2006), *Development Issues in Islam*, International Islamic University Malaysia

Sen, A. (1985). *Commodities and capabilities*. Amsterdam: North Holland.

Sen, A. (1992). *Inequality re-examined*. Oxford: Clarendon Press.

Sen, A. (1999). *Development as freedom*. Oxford: Oxford University Press.

Slottje, Daniel J. (1991) 'Measuring the Quality of Life Across Countries.' *The Review of Economics and Statistics*, 73(4).

Solimano, Andrés (2000), "Beyond Unequal Development: An Overview" in A. Solimano, E. Aninat and N. Birdsall (eds) Distributive Justice and Economic Development: The Case of Chile and Developing Countries, The University of Michigan Press.

Srinivasan, T.N. (1994) 'Human Development: A New Paradigm or Reinvention of the Wheel?' *American Economic Review*, 84(2).

Streeten, P. (2000). 'Looking Ahead: Areas of Future Research in Human Development', Journal of Human Development, vol. 1, no.1, pp. 25–48.

Streeten, Paul (1979), 'Basic Needs : Premises and Promises' *Journal of Policy Modelling* Volume 1

Streeten, Paul (1980), *'From Growth to Basic Needs' in Poverty and Basic Needs*, New York: The World Bank, Sept..

Streeten, Paul (1981), *Development Perspectives*, London: Macmillan.

Todaro, Michael P. (1997), Economic Development, 6th Edition, Reading, Massachusetts: Addison-Wesley.

Transparency International (2007), *Global Corruption Report 2007*, Cambridge

UNDP (1995), Human Development Report (HDR), New York: Oxford University Press.

UNDP (1999), *Human Development Report*. New York, Oxford University Press.

UNDP (2001), Human Development Report (HDR), New York: Oxford University Press.

UNDP (2007), *Human Development Report*. New York, Oxford University Press.

UNDP (2007), *Measuring Human Development: a Primer*. New York, Oxford University Press.

World Bank (2007), *World Development Report 2006*, New York, World Bank

Appendix

Country	MWI		NWI			
	GI	DEI	LEI	EI	FSI	RI
Afghanistan	NA	NA	NA	NA	NA	NA
Albania	0.165632	NA	0.942466	0.866081	0.527376	0.4
Algeria	0.229401	0.705051	0.819178	0.639318	0.51523	0.483333
Azerbaijan	0.154675		0.693151	0.859989	0.35348	0.366667
Bahrain	0.756063		0.915068	0.841218	0.566512	0.916667
Bangladesh	0.046457	0.321212	0.583562	0.362383	0.514363	0.3
Benin	0.013148	0.177778	0.372603	0.22648	0.610179	0.383333
Brunei	1		0.956164	0.856144	0.570175	0.8
Burkina Faso	0.015778	0.012121	0.263014	0.030633	0.578947	0.5
Cameroon	0.055442	0.49697	0.219178	0.569015	0.524291	0.35
Chad	0.023594	0.111111	0.235616	0.086953	0.556584	0.3
Comoros	0.044266	0.507071	0.610959	0.333333	0.667149	0.3
Cote d'Ivoire	0.031665	0.325253	0.153425	0.210804	0.457586	0.316667
Djibouti	0.051023	0.563636	0.331507	0.036568	0.518508	0.3
Egypt	0.129876	0.735354	0.791781	0.667213	0.587623	0.516667
Gabon	0.225457	0.727273	0.394521	0.755892	0.49894	0.466667
Gambia	0.041636	0.531313	0.465753	0.385373	0.572585	0.383333
Guinea	0.056063	0.082828	0.356164	0.155271	0.601407	0.283333
Guinea Bissau	0.00168	0.234343	0.109589	0.196906	0.623867	0.3
Indonesia	0.111833	0.771717	0.764384	0.792051	0.511953	0.366667
Iran	0.262491	0.878788	0.808219	0.743836	0.485637	0.416667
Iraq			0.435616	0.610396	0.575092	0.283333
Jordan	0.173448	1	0.824658	0.844087	0.626759	0.85
Kazakhstan	0.258437		0.660274	0.99	0.4091	0.4
Kuwait	0.925858		0.972603	0.848365	0.548969	0.766667
Kyrgyz Rep.	0.041855		0.652055	0.908318	0.463948	0.333333
Lebanon	0.17542	0.967677	0.813699	0.870605	0.51417	0.566667
Libya	0.348941	1.139394	0.865753	0.858349	0.59572	0.416667
Malaysia	0.368919	0.826263	0.873973	0.805581	0.599769	0.8
Maldives	0.163623	0.79596	0.690411	0.832216	0.536052	0.3
Mali	0.009204	0	0.309589	0.068457	0.555813	0.433333
Mauritania	0.053068	0.347475	0.586301	0.346287	0.559476	0.483333
Morocco	0.137838	0.464646	0.783562	0.676595	0.513399	0.5
Mozambique	0.016837	0.117172	0.005479	0.271473	0.584249	0.433333
Niger	0	0.034343	0.383562	0.044348	0.547619	0.3
Nigeria	0.012673	0.385859	0.128767	0.551137	0.520821	0.333333
Oman	0.541308		0.909589	0.708685	0.669944	0.866667
Pakistan	0.058035	0.408081	0.624658	0.308991	0.536919	0.333333
Palestine			0.852055	0.875349	0.816464	
Qatar	0.981848	0.981818	0.909589	0.82397	0.583285	0.966667
Saudi Arabia	0.545289	0.971717	0.832877	0.763036	0.653075	0.516667
Senegal	0.036925	0.272727	0.561644	0.214961	0.574417	0.516667
Sierra Leone	0.000913	0.094949	0	0.199037	0.421053	0.333333
Somalia		1.139394	0.145205	0	0.516484	
Sudan	0.047553	0.444444	0.427397	0.392112	0.623578	0.3
Suriname	0.253506	0.933333	0.761644	0.826402	0.524002	0.466667
Syria	0.110555	0.864646	0.871233	0.752318	0.646906	0.45
Tajikistan	0.021001		0.671233	0.883249	0.570657	0.333333
Togo	0.026479	0.369697	0.438356	0.407307	0.586466	0.366667
Tunisia	0.27721	0.777778	0.868493	0.689646	0.498843	0.733333
Turkey	0.278524	0.953535	0.810959	0.768285	0.50723	0.6
Turkmenistan	0.111651		0.569863	0.990777	0.422499	0.333333
Uganda	0.02458	0.438384	0.216438	0.562699	0.705996	0.416667
U.A.E	0.903324	0.969697	1	0.738745	0.570175	1
Uzbekistan	0.046822		0.684932	0.718706	0.479661	0.316667
Yemen	0.005442	0.371717	0.539726	0.416061	0.706863	0.4
Average	0.199486	0.553632	0.590336	0.566946	0.556507	0.469811
stad dev	0.268998	0.339497	0.279372	0.298392	0.079092	0.195463
Max	1	1.139394	1	0.990777	0.816464	1
Med	0.084295	0.50202	0.652055	0.676595	0.556584	0.4
Min	0	0	0	0	0.35348	0.283333

Sources: HDR 2007, IDB 2007, WDR 2007, *calculated*