



## A Statistical Framework on Identification of Maqasid Al-Shariah Variables for Socio-Economic Development Index

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### Abstract

*Islamic jurists have used the Maqasid al-Shariah concepts to protect humankind's faith (din), their self (nafs), their intellectual (akl), their posterity (nasl), and wealth (mal) for centuries. In fact, these concepts are the bases of the divine religious. Hence, they cover all areas of life, especially the socio-economic topics. Our aim is to study this article by using classical fiqh opinions and transforming them to socio-economic index. In this study, we present two approaches for Maqasid al-Shariah index. Bayesian Factor Analysis provides a powerful method to choose number of factors to explore the covariance structure of Maqasid al-Shariah terms. Model selection and criterion is based on a Bayesian point of view and generalized Bayesian Information Criterion can be applied to select adjusted parameters including the hyper-parameter for prior distribution and the number of factors. Because of the latent nature of the Maqasid al-Shariah variables, another method, Bayesian Structural Equation Modeling, is proposed to explain the relationships of latent variables.*

**Keywords:** *Maqasid al-Shari'ah, Bayesian Models, Structural Equation Models, Factorial Analysis*

### 1. Introduction

All rulings of worldly and religious affairs have been built on the *maslaha* (interests).<sup>1</sup> Allah hasn't completely given the legislative authority to human-beings. If this authority was only left to people, it would be a great chaos.<sup>2</sup> Because they do not clearly know the right about themselves. Allah has put the main and basic interests (Cessas, et al.). However, most of the affairs, in essence are variable. Therefore, as the situation and the time are bound to change,

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<sup>1</sup>Note: This article's methodological approach to maqasid, mainly took advantage of Pekcan, Ali. (2013) Makasid Teorisine Giriş: Fikhi Hükümlerin Ğai Arka Planı, Hikmetevi, İstanbul. Thanks him.

<sup>2</sup>Surah Yunus, 10/15: "And when our clear revelations are recited unto them, they who look not for the meeting with us say: Bring a Lecture other than this, or change it. Say (O Muhammad): It is not for me to change it of my own accord. I only follow that which is inspired in me. Lo! If I disobey my Lord I fear the retribution of an awful Day."

behaviors may also vary with the change of the format. Indeed, in the Majallah al-Ahkam al-Adliyah, the Article 39 refers to this situation.<sup>3</sup>

Islam, for the good of the human beings in this world and the Hereafter, has put various rules. While putting them, it has observed certain aims and objectives for the benefit of people and hasn't left any provisions unjustified and pointless. Thus, Allah's commandments and prohibitions include some interests for all human beings. Those; for human beings are "maslaha", for Allah's purpose are "maqasidu's-shari" (the goals of the Legislator), and for both sides are the legislative wisdoms (*hikmat tashri*).<sup>4</sup>

As called, *maqasid* may be taken into three categories; those are essentials or necessities (*zaruriyat*), and the complementary (*haciyat*) and embellishments (*tahsinîyat*). The conventional Islamic jurists pointed out that it is necessary to be aware of their meanings for judging.<sup>5</sup> Contemporary Islamic jurists have the same opinion.<sup>6</sup> According to some writers, Muslim communities would need to describe their own needs and reshape the goals in accordance with their religious beliefs. "Modernity thus becomes human empowerment because it concerns the needs and ambitions of a people seeking their advancement and progress" (Deina, 2003).

### 1.1. Some terms related with Maqasid al-Shari'ah

Besides *maqasid*, some terms have been used in the same or similar meanings. These are; the pleasure (*husn*), and the outrageous (*qubuh*). Something may be beautiful or ugly (*li aynîhi*) in its essence, or owing to something else (*li ghayrihi*). In Islam, aimlessness and improper behaviors are counted ugly. Religious rules had been established upon the basics that are the wisdom, which absolutely contains a benefit. Thus canonical provisions do contain wisdom.

The intellect (mind) is one of the evidences of Allah. Because there are mainly two lights: the Holy Qur'an and the intellect. However, the wisdom of the Holy Qur'an is quite outstanding and valuable. While the intellect guides the way (*nur hadi*), the other is a light source that illuminates the way (*ziyaun kafi*). Therefore, both of them do not contradict because these are Allah's evidences.

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<sup>3</sup>Majallah al-Ahkam al-Adliyah, the Article 39: "It is an accepted fact that the terms of law vary with the change in the times."

<sup>4</sup>In the Holy Qur'an, and the Prophet Muhammad hadiths, and the other Holy Books (Torah and Bible) there are some goals of Shariah. When we look at Sourah Mumtahina, 60/12, in this verse on the "bey'at", it is seen four essential principles of the five basic except of the principle of mind protection (*hifz'ul-akl*). Prophet Muhammad (pbuh) is definitely essential matters of principle in its commitment to women and men has been mentioned (Ibn Taymiya, 1398). Most *maqasid* issues (the protection of the faith, the intellect, the self, the prosperity, and the wealth) were counted in the "Moses" (pbuh)'s ten commandments. In the Bible, Prophet Jesus (pbuh) mentioned some Mose's commandments. So, they are universal.

<sup>5</sup>For the some conventional opinions, see: Shâfiî, Muhammed Ibn Idris. *er-Risâle*. (ed. Ahmed Muhammed Shâkir). Beirut, AH 1358, p. 509–511. Cuveynî. *el-Burhân fî Usûli'l-Fîkh*, ed. Abdulazim ed-Dîb, Qatar, 1992, p. 874; Ghazzâlî, Ebû Hâmid (1980). *al-Manhal min Taiîqat al-Usul*. Damascus, p. 366; Subkî, Ali Abdi'l-Kâfi (1984). *el-Ibhâc fîl Sarhi'l-Minhâc*. Beirut, p.8; Karâfi, Shâbuddin (undated). *Envâru'l-Burûk fî Envâi'l-Furûk (el-Furûk)*. Beirut, p.131.

<sup>6</sup>Some contemporary scholars are: al-Qaradawi, Yusuf (1989). *el-Ictihad fi-Shariah al-Islamiyye*. Kuwait, p.45-47; Fethi Dirîni (1988). *Hasâisu't-Teşri'i'l-İslamî el-Muâsir*. Beirut, p.10; Sharif Omerî (1986). *el-Ictihadü fî'l-Islam*. Beirut, p.96-98; Abdul-kharim Zeydân (undated). *el-Veciz fî Usûli'l-Fîkh*. İstanbul, p.378; Abdulvehhab Hallaf (1984). *İlmü Usûli'l-Fîkh*. İstanbul, p.234

Islamic jurists necessarily have taken jurisprudence (*ijtihad*) and interests (*maslaha*) for protection of law in the affair. *Ijtihad* is a kind of decision making process through knowledge of theology and legal theory within Islamic Law by a qualified jurist (*mujtahid*). *Maslaha* is the general considerations of securing benefits or preventing harms.

Scholars have highlighted the necessity of *ijtihad*. They have adopted an objectives-based approach in their practice of *ijtihad*. Scholars have agreed that *ijtihad* is a collective obligation on Muslim communities and it must consider the needs and differences of communities. While determining primary or secondary objectives of *maqasid*, the adaptability and rigidity of the doctrines of Islamic scholars on *ijtihad* should be taken into account (Ibn Ashur, 2006). Besides, *maslaha* that embracing the genuine interest of community which are not contradictory to the main idea of *shariah* needs to be clarified towards *ijtihad* for describing Maqasid al-Shariah variables. Shatibi introduced the *maqasid al-shariah* into the *ijtihad* and introduced the *ijtihad* into the term of *maqasid al-shariah* (Raysuni, 2005).

Comparison of Hanafi which is commonly used in order to eliminate the rigidity of the method (*istihsân*), especially the essentials, interests, and common usages based varieties, is ultimately based on *mursal* (forwarded) interests.<sup>7</sup>

## 1.2. According to Some of the Scholars: Maqasid

One of the first systematic studies about *maqasid* has been started by Ghazzali. His researches focused on the life, wisdom, chastity and goods protection that are required by law. After mentioning four of these purposes, he added the fifth as the “protection of religion” considering it as an essential. Cuveynî (1992) has reduced five divisions to three and he named them *zarûrîyyat* (the essentials), *haciyyât* (the complementary), *tahsiniyyât* (the embellishments).

According to Ghazzali, three conditions are sought for the analysis to be valid: to be essential (five mandatory elements protection), to be precise (the exact realization), and to be holistic (comprehensive all Muslims, not part of them). Moreover, Ibn Taymiyya has joined to the same division of *maqâsid*. Besides the five essential principles, he mentioned a number of elements and said: "... the world and in the Hereafter, for the affairs are some of the contractual commitment to, relatives maintain relationships, the state-public and the neighbors' rights to regard the Muslims each other's rights to comply" (Ibn Taymiyya, 1398).

Shâtîbî (A.D. 1388) has divided the interests into three: the essential, the complementary, and the embellishment. According to him, canonical obligations, positive (charged) and preventive protection (*ibkâ*) methods are divided into two groups in terms. Within the group of positive methods are worship, practices and transactions, while the murders (penalties) are located in the preventive group. He believes, complementary "*hâciyyât*" has been enforced to expand the boundaries of *maqâsid*, and to facilitate the realization of the essential legislative affair. Embellishment consists of things to provide superior morality to behave in accordance with the common sense and to welcome moving away from the negative cases (Shatibi, 1388).

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<sup>7</sup>For this, see: Abû Zehra, Usûl, p.268; Zerkâ, Mustafa Ahmed (1998). el-Istislâh ve'l-Mesâlihi'l-Mursalâh fi'l-Sharâti'l-Islamiyye ve Usûli Fikihîhâ, Damascus, p.61; Karaman (1985), İslam hukukunda İctihat, p.164; Dönmez (1981), p.154

According to Shatibi (1388), three interests are closely tied to each other. This connection is bi-directional. First of all: each order itself complementary and integrative requires the addition of some elements. Secondly, they are tightly related with each other in order. So embellishment completes the complementary, and complementary completes the essentials. Each of them is an integral part of the case. Shatibi (1388) states that the essentials are the basis, and a number of these categories relate to each other that draw conclusions. Some of these results are:

1. Essential, complementary and embellishment constitute the principal.
2. Essential when it was a violation, it should not be in violation of both complementary and revenue embellishment.
3. Complementary and not in violation of embellishment from the breach of essential is not concerned.
4. Essential for the protection of complementary and embellishment affair, which is mandatory.

Shatibi (1388) emphasizes that all the mental and intellectual activities are used on the inductive method, and applied frequently the five elements in the foundation of the application of this method. According to him, finding evidence of induction of the forms and methods are the methods that provide accurate information. Shatibi responded to the question of how five essential principles are fixed: Islamic societies and other communities agreed on the five principles of the essential for the protection. These are religion, self, posterity, wealth and intellect. According to all of the community, religion is one of those known as mandatory. Neither these have been fixed with certain evidence, nor an original that we could turn to witnesses to us. However, their relevance to religion is known to be the sum of the evidence, more than to be fit in a single issue.

Each affair, that is including the protection of the five elements, is the *maslaha* (interest). And each affair, that is eliminating them, is *mafsada* (bight). Wherein the relief of *mafsada* is the interest.

This five elements have been completed (*kulliyât-hamsa*) by adding the sixth: protection of honor (*hifzu'l irz*). Islam has banned slander, gossip, and such bad behavior, especially about adultery libel had been determined. Therefore, the protection of honor is the sixth of the set values. One of the contemporary Islamic jurists Ibn Ashur (2006) separated the affairs into different sections as three aspects after mentioning their importance and necessity. These affairs are:

1. In terms of Islamic society, there are three parts: a. essential, b. complementary, c. embellishment.
2. In terms of the whole of the Muslim community, interest groups and individuals, it is divided into two parts: a. holistic, b. partial.
3. In terms of standing society and the survival of individuals, there are three parts: a. certain, b. accusative, c. notional.

Ibn Ashur (2006) describes the essentials as: if they are violated, individuals or society will be damaged and will need to obtain the benefits that are mandatory. So, when this interest is abolished, the state of the nation faces amount of deterioration and disintegration. For both the

community and individuals, economic interests are very important. So, the indicators are utilized by determining them.

Essentials of human beings, the sheer aspect of being human, mean necessity to protect the natural needs. Accordingly, *hâciyyât* and *tahsîniyyât* are regarded as the protectors of essential affairs and developers of level of the affairs. In the words of Ibn Ashur (2006), top level of *tahsîni* affair is an indication of Islamic civilization in its mature and it has been set as the ideal level.

## 2. Knowing the Benefits of the Goals of Islam

Knowing the purpose of the religious goals provides some theoretical and practical benefits. They can be listed briefly as follows (Pekcan, 2013):

- 1- Religious terms must be understood and interpreted correctly,
- 2- Religious purposes, is a method for the solution of new problems encountered. Indeed, some of the events encountered, do not participate in religious terms and the scope of the phrases and their comparison to the provision cannot be determined. Reclamation (*istislâh*) is a method to solve problems that has no clear answer in religious texts. So, when there is no clear law that carries the spirit of the general objectives of Islamic law, provisions must be taken into the consideration. Knowing the goals of Islam, provides the heart tranquility (*tuma'nînatu'l-qalb*) and complacency (*sharhu's-sadr*).
- 3- Today, many studies have been done on the main objectives of the religion in Islamic Law. If they are to be brought into the socio-economic index, they will be a significant contribution to the field of Islamic economics.

In this context, it is possible to benefit from historical studies of Islamic economics.<sup>8</sup>The five objectives of the *Maqasid al-Shariah* may be described as shown in Figure 1 and can be discussed briefly as below:

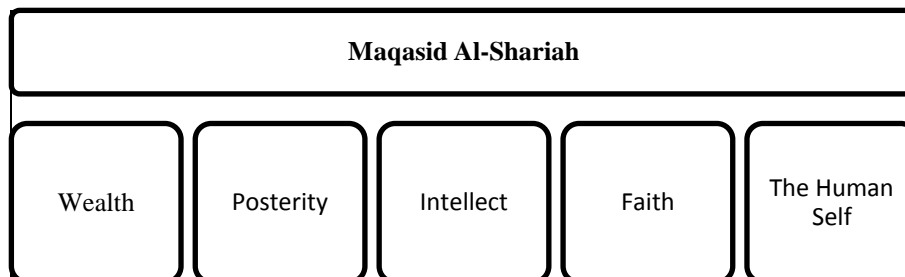


Figure 1. Variables of Maqasid al-Shariah

### 2.1. The protection of the faith (*al-Din*)

Whether in the narrow sense of faith-worship, whether generally faith, worship, legislation, the religion and Sharia, are phenomena indispensable for human life. God inspired religion in accordance with creation of humankind, and has facilitated its application. Principles of belief consist of; Allah, the prophets, the books, the angels, the Last Day, and believing in fate. Faith in God is the foundation of religion. *Tawhid* (monotheism) is the essence of the Islamic faith.

<sup>8</sup> For this, see: al-Omar, Fuad Abdullah (2003). *Mukaddima fi Tarihi'l-Iqtisadi'l-Islami ve Tatavvruhu*. Jeddahs

Shatibi (1388) included the worship, prayer, fasting, charity, and pilgrimage into the essential part of the religion. Islam, primarily comes out against superstitious beliefs, lust and desires to be subject to counterfeiting, dulled human mind with superstitions and intelligence of unfounded astrology, pursuit of augury, ignorance and bigotry in faith. Therefore, the reasoning that is a part of intelligibility as well as explanation and justification must be maintained to protect rational choices and meaningful acts.

The faith preserves religion through some principals and worship. In order to provide a better, meaningful life and individual accountability, the importance of protection of the faith has been also underlined by western scholars. Toynbee (1958) states that moral and social refreshment cannot be progressed without moral sanctions of religion. T.S. Eliot remarks on the importance of religion by stating “*without religion the whole human race would die*” (Lukacs, 1971). Williams (1985) underlines that the morality is not a product of philosophers but religion.

In the Islamic Vision of Development in the light of *Maqasid al-Shariah*, Chapra (2008) emphasizes the values, motivation and physical and moral education in the protection of religion (faith). In the scope of values, he puts justice, freedom, family culture, social responsibility, dignity and the like as variables. He adds the equity allocation that is based on brotherhood into the context. He also draws attention to the role of the state.

## **2.2. The protection of the self (*an-Nafs*)**

For the protection of the life or the self (*an-Nafs*), the purpose is to protect people and humanity. In this context, all people are equal in rights because of a person's obligatory aspect of being human. These rights include the rights to life, health protection, making legal transactions, liberty, equality and the right to freely search and selection. Other rights of the people called “vested rights” that are acquired by his own efforts.

Abu Zahra (1989) states that the protection of the human self (life) to guarantee people's honorable life is the preservation of life. All human bodies are also involved in the protection that states self-defense. The protection of the dignity of the same clutch of people, tarnishing the honor, spiritual qualities, such as suppression of freedom are also included in the same concept. The human freedoms such as freedom of work, thought, and residence without being attacked by anyone in the community, are essentials of maintaining a virtuous life. Other freedoms supporting virtuous human life are included in spiritual elements that without control and manipulation.

For the protection of life, its losses should be removed. These losses are expected from the removal of the target; the existence of life, spirit and body. These are all the variables that to protect the integrity of human being. Chapra (2008), in the above-mentioned book, counts the self-protection as the first of five goals and he separated this term into fourteen subtitles. These are counted as motivating moral values in most studies. These are: a. Dignity and self-respect, b. Justice, c. Security of life, property and honour, d. Spiritual and moral uplift, e. Good governance, f. Freedom, g. Education, h. Employment, i. Equitable distribution of income and wealth, j. Marriage and proper upbringing of children, k. Mental peace and happiness, l. Coping with crimes, m. Fulfilling the needs, n. Social solidarity.

### 2.3. The protection of the intellect (*al-Aql*)

Only to people who own spirit, soul, heart and mind, “*the name*” is also given. Indeed, “*the name*” is the mind that makes people responsible and also to have the rights and duties that he supplies.

In Islamic context, the term “*aql*” includes both reasoning and intellect. By having *aql*, the human being is aware of himself and he becomes able to share knowledge (*al-‘ilm*) using logical reasoning by induction and deduction. In the Holy Qur’an, it has been referred to *aql* over and over again.<sup>9</sup> *Aql* is also used as intelligence, reason, common sense and perception in relation to different aspects of inner structure (Nasr, 1979). However, Ghazzali (2008) names the intellect as the foundation of knowledge and wisdom.

Two important results in the protection of the mind stand out. Those are:

- 1- Protecting mind through physically and intellectually is a necessity. The elements regarding biological needs such as eating, drinking, exercising as well as reading, thinking, criticizing needs to be provided. From this point of view, the preservation of life will be covered by mind-body unity with the spirit.
- 2- The real purpose of the protection of mind, rather than biologically, is based on thinking by its functional capability. A mind that lost the ability to think, has lost its essential functions and would not have any legal obligations. Because the addressee is the mind for the religious proposals and orders.

According to Çizakça (2007), the *Maqasid al-Shariah* actually advises Muslim governments of the future whether to undertake or to reject a policy regarding the protection of the intellect (*hifz al-aql*). This has been traditionally interpreted as the duty of the state to protect the reason or mind of its citizens and has taken the form of alcohol and drugs prohibition. The author also prefers to interpret the protection of the intellect as the duty of the state for ensuring freedom of thought. Chapra (2008) has listed the following items on the protection of the mind:

- 1- High quality of religious and science education at affordable prices,
- 2- Emphasis on the *maqasid* in the interpretation of texts, library and research facilities,
- 3- Freedom of thought and expression, reward for creative work and finance.

### 2.4. The Protection of the Posterity (*an-Nasl*)

The purpose of the protection of the posterity (*an-Nasl*) is the reproduction of the human species. If the progeny is stopped or interrupted, this will cause an impairment or decline of the species. In order to provide a continuous improvement in generations, some factors must be assured. One of these is abstaining from the actions that destroy *nasl*, one’s progeny, which is the

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<sup>9</sup> For this, see: Sourah Al- ‘Mulk, 67/10; Sourah Al-‘Anfal, 8/22; Al- ‘Anbya’, 21/22; Ar-Ra’d, 13/11; Al-Fussilat, 41/53. Ali ibn Abi Talib, the cousin of Prophet Muhammad, reports that the archangel Gabriel appeared to Adam and said: O Adam, I am ordered to offer you three choices: select one and leave the other two. When Adam inquired about his choices, Gabriel offered: “Intellect, modesty and religion”. After a brief contemplation, Adam replied: “I choose intellect”. Gabriel instantly commanded “modesty” and “religion” to depart. Refusing to obey, the two stood next to “intellect” saying that they were under instructions to remain with “intellect” wherever it might be (Kheirabadi, 2004, p.43).

one of the essentials under the Law. For example, unless otherwise specified in terms of health factors, the males must be prevented from demasculinization and the females from the celibacy. Similarly, unless otherwise specified, females must be prevented from hysterectomy which deprives them of the organs necessary for birth, and from abortion (Ibn Ashur, 2006).

The second factor is progeny (*al-nasab*). According to Islamic Laws, *nasab* ensures the determination of inheritance and contracting of marriages. It concerns the relationship by affinity, alimony and procuration in *fiqh*. For example, a vagueness about the offspring's relationship to their parents may destroy the inclination to protect and educate the children through physically and mentally. Similarly, a lack of family integration that concerns the protection of children's rights may abolish the objectives of a family system. Discouraging divorce, strong abomination of secret marriages or forbidding the marriage without witnesses will also help to protect the posterity and to have a clean and noble generation. From this point of view, Chapra (2008) combined the sub-factors relating to the protection of posterity as following: a. Proper upbringing, b. Moral and intellectual development, c. Marriage and family integrity, d. Clean and healthy environment, e. Freedom from fear, conflict and insecurity.

## 2.5. The Protection of the Wealth (*al-Mal*)

In Islamic context, wealth is described as a combination of some characteristics. Wealth is a desirable acquisition and it can be hoarded (*iddikhar*) and measured (*miqdar*). It has liability for transfer of exchange (*tadawul*) and gained by its owner with effort (*muktasab*).

Islam has put many rules for the property and wealth preservation and development.<sup>10</sup> According to Çizakça (2007), the wealth protection has been traditionally interpreted as the right of a Muslim to protect his property. This can be interpreted alternatively as the duty of the state to assure property rights that is an absolutely important condition for democracy and economic development. In order to remove poverty and sustain equal distribution of income and wealth, there are various factors required. Savings and investments, employment, good governance, security of life and honor, technological developments, number of enterprise and mutual trust are essentials to be considered.

Redistributive methods like *zakah*, *sadaqat* and *awkaaf* are crucial goals to assure the protection of wealth. Moreover, without effective property rights, accumulated capital of the Muslims would be hidden under the mattress, a condition frequently and strongly condemned by the Holy Qur'an.

How the essential values should be sorted is viewed in various ways. By a group of lawyers, if such matters (*maslaha*) conflict with each other, principle of faith protection is preferred. According to Ibnü'l-Humâm (undated) after life, lineage, intellect and property are protected respectively. Some of the opinions state that the protection of religion is more important than the protection of life. In other words, they argue that *jihad* is a religious duty for the protection of the religion (Emîril-Hâc, 1996; Bûtî, 1992). This term frequently is translated as "holy war", but in reality, *jihad* refers to many meanings such as inner struggle against sin as well as outers, internal as well as external efforts to be a good Muslim. Qahtani (2015) studied the philosophy

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<sup>10</sup> For this, see: Esen, Adem (2007). *Mal, Mülkiyet ve Piyasa (Goods, Property, and Market)*, IDB Press, Jeddah



of *jihad* in light of all relevant texts from Qur'an and Sunnah, bearing in mind all related principles of Islamic Law and *maqasid* context.

### 3. Technical Study

Index is a statistical measure of changes in a given set of individual data points. It helps to clarify the specifics of variables in a particular context. Basically, there are two main objectives of statistical indexes (Schultze and Mackie, 2002):

1. Description by summarizing information,
2. Induction, which involves either generalization from samples or the formulation of the laws based on repeated observation.

The classification of indexes can be based on some criteria of contents and objectives towards socio economic processes. Direct indexes may be based on single series or more or less collections and should be standardized by single weights or a fixed concept. Dynamic concepts include an iterative learning process that exercise a heuristic function in determining the epistemology of socio economic concerns. Indirect-derived or proxy indexes can emerge from the results where direct measures are not feasible (Bell and Morse, 2008).

The conceptual literature of socio economic indexes is divided into two groups. Objective or social indexes are type of indicators that usually applied to the mode of assessment that is based on external evidence. Economic and environmental indicators are typical examples of objective indexes. Subjective indexes are often related to experiences of lives and includes the measurement of satisfaction, happiness, depression that complementing quality of life. Surveys, polls, interviews and questionnaires are conducted to capture the aspects of people for measuring subjectivity (Horn, 1993).

The relation of subjectivity to social facts has been discussed in the sociological area as has been the link between cardinal and ordinal scaling. What is being measured and how it is being measured must be considered during the scaling process. All objective-type indicators carry a subjective value load inherent in the process of the collection, selection and presentation of statistics, and subjective-type indicators borrow objective modes of grouping, ranking and partitioning the data.

Linking the interrelations of data within the statistical base and between components is important for establishing correlations within and between indicator elements (the connection between production and trade via high technology; auto-correlation between infant mortality and life expectancy etc.) Considering the choice between ordinal and cardinal measures for needs is vitally essential.

The methodology of creating indexes depends on placing each variable in  $N$ -dimensional space. The procedure of developing an index can be (Horn, 1993):

1. Formulating the problem,
2. Obtaining input data,
3. Deciding number of dimensions (to decide on the number of dimensions),

4. Mapping the results and defining the dimensions,
5. Testing the results for reliability and validity,
6. Reporting the results comprehensively with a reliable methodology

### 3.1. Defining the Variables of Maqasid al-Shariah in a Statistical Context

Many variables with fixed scales are familiar in daily life. Since many of variables can be based on different criteria of contents, there has to be a fair selection and presentation process. As presented in Figure 1, *Maqasid al-Shariah* has five main variables including sub-variables. Depending upon various contents, they have different level of measurement).

Since being hidden by the parties of study or purely defined nature; obtaining and measuring of objective data is difficult for empirical studies (Olken, 2009). In a *maqasid* based study, rather than working with objective data, subjective measures like corruption, happiness, intellect, and protection of *al-Din* are generally being used.

Latent concepts may have important effects on the theoretical work of various subfields of statistical indexes. In terms of *Maqasid Al-Shariah*, there are latent relations between the sub-variables. For instance, security, justice and freedom are the mutual needs to sustain faith (*al-Din*), to protect posterity (*al-Nasl*) and to provide freedom of thought which a sub-variable of intellect (*al-Aql*). A comprehensive action of the variables as stated above will induce mutual affection, compliance with norms, growth of economy and wealth. Furthermore, high quality of education which is the need of human personality will enable community to not only strengthen the knowledge and wisdom for society but also perform their engagements by consciously. For this reason, most of the sub-variables of *Maqasid al-Shariah* are expected to have direct, indirect and reverse causality. In this concept, the variables must be clearly defined, understood and interpreted in the same way by all participant variables. Reliability, sensitivity, equally weighting, aggregation and validity are the key issues of systematic biases related to scale and also cognitive biases like halo effects as a source of measurement error to be avoided.

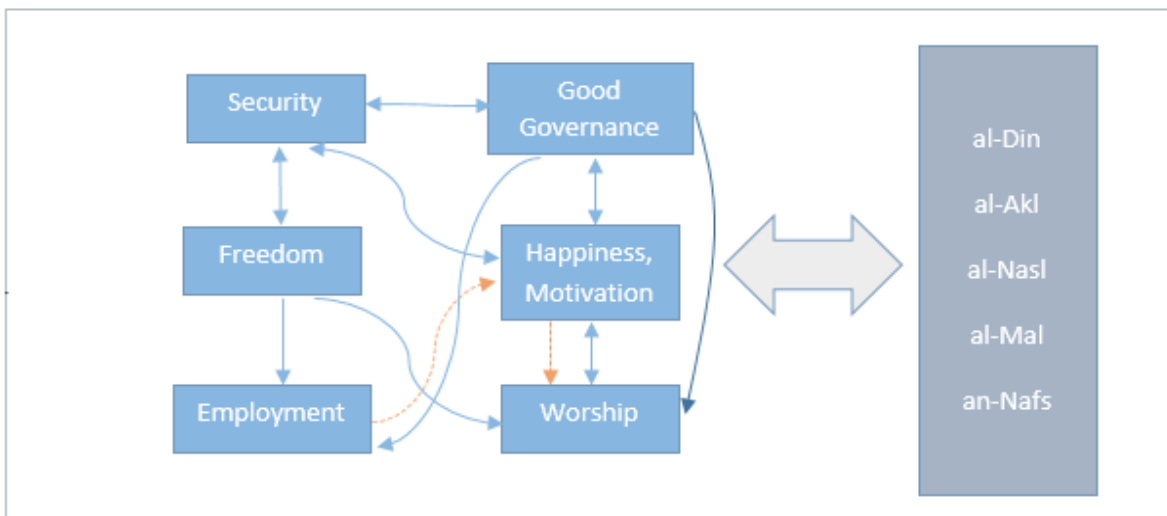


Figure 2. Potential Direct and Indirect Relations of Sub-variables

Although there are many sub-variables explaining *Maqasid al-Shariah* in Islamic context, we used the variables that are measured and evaluated periodically by various organizations. Due to not having a convenient sample and lack of data, the most appropriate indexes and variables related to *maqasid* literature are proposed as variables in Table 1.

Maqasid Al-Shariah Variable	Explanatory Sub-Variables	Measurement Scales
The protection of the faith ( <i>al-Din</i> )	-Peace Index -Values Index	Nominal, Ordinal, Continuous
The protection of the intellect ( <i>al-Aql</i> )	-Articles Published (Numbers) -Education Expenditure (% of GDP) -Patent Grants by Filing Office (Numbers) -Total Researchers (Numbers) -Internet Users (per 100 persons)	Continuous
The Protection of the Posterity ( <i>an-Nasl</i> )	-Health Expenditures (% of GDP) -Prevalence Rate of Tobacco Consumption (%) -Life Expectancy at Birth (Ages) -Fertility Rate (Births per Woman)	Continuous
The Protection of the Wealth ( <i>al-Mal</i> )	-GDP, Per Capita (Current Prices) -Gross Domestic Savings (% of GDP) -Household Consumption, Share in Total Consumption (Percentages)	Continuous
The protection of the self ( <i>an-Nafs</i> )	-Labour Participation Rate (% of total Population Ages 15+) -Freedom Index -Safety Index -Political Stability and Absence of Violence Index	Nominal, Ordinal, Continuous

**Table 1. Proposal of Maqasid Al-Shariah Related Variables for Socio-Economic Index**

We introduced two alternative methods for modeling relationships of variables of *Maqasid al-Shariah*: Bayesian Factor Analysis and Bayesian Structural Equation Modeling.

### 3.2. Bayesian Factor Analysis

Multivariate analysis takes different scaled indicators for socio-economic concerns into account and analyses more than one statistical outcome at a time. Factor analysis aims to bring correlated variables under general. Specifically, “the goal of factor analysis is to reduce “the dimensionality of the original space and to give an interpretation to the new space, spanned by a reduced number of new dimensions which are supposed to underlie the old ones” (Rietveld and Van Hout 1993), or “to explain the variance in the observed variables in terms of underlying latent factors” (Habing, 2003). Hence, factor analysis do not only disclose clarity of dimensions and an apprehensive view of data, but also makes output ready for subsequent analysis (Rietveld and Van Hout, 1993).

The studies in which social, economic, psychological, spiritual or medical state are tested via several subtests, like objective and subjective measurements. Because of the complex nature of variables, the study can become rather complicated. Exploratory factor analysis (EFA) is a

quantitative method to disclose the underlying structure of a large datasets. The main role of this technique is to describe the latent relationships between the variables (Norris et al., 2009). It has been used by researchers during developing a scale or economic index with the researcher who has no a priori information about factors or patterns of variables (Fabrigar et al., 1999).

There are several steps in conducting EFA research (Suhr, 2009):

- 1- Reducing the number of variables,
- 2- Examining the structure or relationship between variables,
- 3- Detecting and assessing unidimensionality of a theoretical construct,
- 4- Evaluating the construct validity of a scale, test, or instrument,
- 5- Developing a parsimonious (simple) analysis and interpretation,
- 6- Addressing multicollinearity.

The factor analysis model is generally estimated by maximum likelihood technique under the assumption of normality. However, in practice, the maximum likelihood estimates of variances can often turn out to be zero or negative. This improper solutions have been studied by many researchers both from theoretically also empirically (Kano, 1998; Krijnen et al., 1998).

In terms of the explanation of *Maqasid al-Shariah* variables in factor analysis framework, one of the sub-variables of protection of *al-Din* may be a subjective variable that looks into faith based on ordinal scale that has a different weight on factor loading (e.g. peace and value index). However, the protection of the wealth (*al-Mal*) may be presented as an objective variable like GDP per capita or household consumption or savings per person, based on interval-ratio scale, against apostasy to protect religion that may have a different effect on factor loading. To measure the latent concepts of variables, two complementary approaches have been discussed in the literature. The first approach is about the collection of proxy variables and using quantitative models to focus on data collection. The approaches also includes how to take the effects of expert opinions, debates, debates and simulations into account for use of measurement models. The second approach is to measure the latent concepts that the responses are either continuous or ordinal. In this situation, most of the studies prefer the analytic procedure as the following (Quinn, 2004):

- 1- Transform the ordinal variables to continuous,
- 2- Discretize the continuous variables,
- 3- Use only continuous or ordinal variables,
- 4- Do not follow a model based measurement strategy.

Ignoring the ordinal nature of variables and discretizing continuous variable may result inaccurate inference and possibly biased estimation. Omitting some variables and discarding scales that load on multiple factors may reduce the precision of the estimates as a negative consequence of this procedure as given above (Quinn, 2004). In order to select the dimensions of latent structure of the variables Gorsuch (2003) and Jennrich (2007) proposed a variety of methods like rotating and extracting factors.

According to literature, Press (1982) and Akaike (1987) have introduced a prior distribution for the elements of unique variances and factor loadings. Then, West (2004) used Markov Chain

Monte Carlo algorithms and received attention on Bayesian Factor Analysis. The important advantage of using Bayesian approach is the capability of utilizing useful prior information for accurate solution.

Lopes and West (2004), Quinn (2004), Carvalho et al. (2008) and Conti et al. (2014) suggested Bayesian Exploratory Factor Analysis as a measurement model that selects the number of factors. This framework relies on allocating the measurements to factors and the corresponding factor loadings. This enables available information to model by not discarding the effects of combinations of continuous and ordinal data.

In order to prevent the occurrence of improper solutions in factor analysis model and because of the nature of variables of *Maqasid al-Shariah*, the selection of number of factors and hyper-parameters in prior distribution are determined by using Bayesian Factor Analysis. This method is introduced by a prior distribution for the variances of unique factors. We propose that, in practice, Bayesian Factor Analysis is a powerful method to select number of factors for exploring the covariance structure of *Maqasid al-Shariah* index. Model selection and criterion is based on a Bayesian point of view and generalized Bayesian Information Criterion can be applied to select adjusted parameters that including a hyper-parameter for the proposed prior distribution and the number of factors.

### **3.3. Bayesian Structural Equation Modeling**

Structural equation modeling (SEM) is a method to test and represent the network of relationships between variables (latent constructs, missing data, continuous measurements that are connected to discrete data). The goals of SEM are understanding the patterns of correlation/covariance among a set of variables and explaining as much of their variance as possible with the model specified (Kline, 1998).

Although there has been a great number of the literature on SEM, only a few studies have proposed Bayesian approaches. Due to not having linearity assumption, mixed scales of variables and missing data, Bayesian approach can be easily applied to a very broad class of SEM applications. This method utilizes prior information that may have some advantages over frequentist approaches. For example, while constructing a peace or freedom index that involves latent variables regarding number of political parties or intensity of internal conflict, some prior information about the relationship between latent variables or factor loadings may be available. This information also emerges as knowledge of experts or historical data. Bayesian SEM allows to utilize prior information in inferring properties of an underlying distribution.

Requirement of indication of prior distributions for model unknowns including parameters and latent variables is a difference between Bayesian and classical approaches. Most of the studies generally assume Gaussian distributions for latent variables (Palomo et al., 2007). Also, computational ascendancy of Bayesian approaches have appropriate solutions on simulations from posterior distribution of parameters and hidden variables. Since estimations of posterior distributions for any functional of the model unknowns are applicable, relying on large sample assumptions are not required. As mentioned in Bayesian SEM literature, the sampling based Bayesian methods depend less on asymptotic theory (Ansari and Jedidi, 2000; Lee and Song, 2004).

Due to providing the estimates of posterior distribution of latents, Bayesian approach can be applied flexibly to (Lee, 2007):

- 1- Obtain point and interval estimates for the factor scores of each individual,
- 2- Compare the factor scores for different subjects,
- 3- Assess whether a particular subject's factor score has changed over time,
- 4- Identify outlying subjects in the tails of the latent variable distribution,
- 5- Define the relationships that may not be fully captured by the basic modeling structure.

Importantly, several free computational softwares, WinBugs, LISREL, MPlus as R implementation are available to produce Bayesian estimates and the estimates of latent variables. To obtain insight into variables' relationship and make associations clear, Bayesian Structural Equation Modeling is proposed in accordance with *Maqasid al-Shariah* context.

#### 4. Conclusion

The goals of Islam have a universal nature, and are classified by the protection of faith (*din*), self (*nafs*), intellect (*aql*), posterity (*mal*), and wealth within *Maqasid al-Shariah* context. The first result of this study is, what the higher objectives of the Islamic Law are exactly, and how are they to be systematized by taking early and contemporary scholar's (experts) contributions into account. *Maqasid al-Shariah* variables must be sorted by defining some authoritative reference points in *ijtihad* and *maslaha*.

In terms of social context of study, the results can be sorted as follows:

- 1- *Maqasid al-Shariah* concept has been discussed in the science of *fiqh* and jurisprudence procedure. *Fiqh* and Islamic economics are the areas that are associated with each other, But both are different methods and areas. For this reason, the method of the discipline of Islamic economics needs to be determined<sup>11</sup>,
- 2- The objectives of Islam covered by the induction method can be applied to the index,
- 3- The essentials (*zaruriyyat*), the complementary (*haciyat*), and embellishments (*tahsiniyat-tekmilat*) can be made into separate indexes,
- 4- The issue can be discussed in terms of *maslaha* and *mafsada*,

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<sup>11</sup>The methods of reasoning in *fiqh* and Islamic economics are not necessarily the same. Islamic economics should rely on a methodology and methods that suit its social and descriptive nature. Researchers' choice of methods and methodology is influenced by the basic unit of analysis in their discipline. By "unit of analysis", it is meant the object of the particular research – natural phenomena, legal rules, markets behaviors of an individual or a group. The kind of units of analysis in a field influences the choice of methods for the investigation of the truth in that discipline. Natural phenomena, for example, comprise entities that have no volition of their own; i.e. they do not choose how they behave; rather, how they behave is governed so-called "natural laws". For such phenomena, the appropriate methods are those that can discover such laws. They include observation, experimentation, induction, deduction and other scientific methods which are mostly aimed at producing descriptive analyses" (Muhammad Yusuf Saleem. p.104-105). Also Siddiqi (2005) states that "economics as we know it is not built on observing the behavior of Muslim people. Despite its claims to universality, it is built on observation of, and imagining of, the behavior of people in the British Isles and western Europe in the 17th century onwards and, lately, in North America. Microeconomic analysis in Islamic perspective has to make up for this deficiency. Our method of doing so is to imagine a people working under the influence of Islamic teachings. We shall also supplement this by historical evidence of Muslim behavior. Also current data on Muslim behavior will be utilized" (Siddiqi, p. 3-6)

- 5- According to the socio-economic and political structure, Muslim societies can be categorized<sup>12</sup>,
- 6- Dealings with other nations of the Muslim communities can be addressed,
- 7- Objective indicators can be included to the subjective elements by determining whether the variables are compatible with Islam or not,
- 8- Public and private sector activities regarding data retrieval can be promoted to obtain data accurately. Before the retrieval, a well-established data warehouse system with a suitable poll, questionnaire and survey construction may be proposed within social research. This system ensures data reporting and analysis.

In the preparation of indexes, some potential difficulties and shortcomings may be faced. One of them is the difficulty of measuring variables that are spiritual. In addition, the shortage of providing data may occur in Muslim societies. This study should be carried out by the formal organizations of Islamic countries which are appropriate to the organizations' mission.

In this paper, we also propose two statistical approaches to create a high explanatory powered index for *Maqasid al-Shariah*. The methods explained above require fewer assumptions and computational easiness. Bayesian approach to both analyses provides the latent variables to have free intercepts and variances and they prevent occurrence of improper solutions. Moreover, it has an advantage that allows for uncertainty in different aspects of the model in performing inferences.

Before creating a statistical index; obtaining, cleaning, inspecting and transforming data are essential. The quality of data with the quality of measurement instruments should be checked out. Also, it is especially important to determine the structure of the variables before the analysis exactly. For this reason, the process of gathering and measuring information on variables of *Maqasid al-Shariah* needs to be performed carefully. In addition, deciding how to gather data whether by observations including surveys, interviews or synthetic methods, is essential to maintaining the integrity of index.

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<sup>12</sup>Some authors indicate in their work as following: “*In terms of sustainable development indicators, most of the modern rationales for the use of such indicators are very much ethical in nature despite their not originating from the Islamic worldview. Hence, Islam endorses these indicators, although efforts should be made to meet the need for a distinctively Islamic framework in the near future. It is worth reiterating that we do not wish to replace the existing conventional indicators of sustainability, but merely to supplement them with justifications from Shariah principles*” (Duasa. p. 120-121).

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