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ROLE OF HOUSEHOLDS' RELIGIOUS BELIEFS ON THE IRANIAN HOUSEHOLDS' UTILITY USING DYNAMIC STOCHASTIC GENERAL EQUILIBRIUM MODEL

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ABSTRACT

Since Iran is one of the *Muslim* countries and in a *Muslim* country, religious teachings and thoughts play an important role in the consumption and the behavior of economics of households, so, by separating household consumption expenditures into two parts, *halal* and non-*halal* consumption expenditures, this article examines *halal* household consumption expenditures and the effect and share of these expenditures on the utility of community members using the Dynamic Stochastic General Equilibrium (DSGE) model. The findings show that religion and religious thoughts in *Muslim*-majority societies play an important and influential role in determining the share of the household consumption bundle, and the utility of this group of households is highly dependent on the share of household consumption expenditures on *halal* goods. The results indicate that religious and pious people manifest a kind of religious-social behavior based on their religious thoughts, which plays an important role in determining the composition and consumption bundle of the household, which in turn helps to improve the country's economy and expand its institutional capacities in eliminating poverty and optimizing the market.

JEL classification: C53, D12, D50, Z10, Z12

Keywords: Religious beliefs, Households, *Halal* goods, Consumption expenditures

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1. INTRODUCTION

The important place of the *Qurʾān*, existing religious beliefs and tendencies, and *Muslim* traditions have always recommended followers of *Islām* to obtain permissible and legitimate material gains and have commanded them to consume *halal* and pursue pure livelihood. The frequent emphasis and advice of *Islām* on consumption according to their religious beliefs and teachings have led to the creation of an *Islāmic* economic system based on justice and the implementation of religious and *Islāmic* methods, which will undoubtedly contribute to economic growth and development as well as social welfare.

Relationship between ethics and economics can be traced back to the Renaissance, when the economy was considered a branch of ethics. Even in recent decades, some economists believed that a large number of economic issues and relationships have a profound connection with ethical issues; thus, the lack of a specific moral philosophy and theory can lead to serious contradictions in various areas of the economy and society.

In *Muslim* countries, religious teachings and thoughts play an important role in the lives of community members; as a result, there is a profound connection and mutual influence between religion, religious teachings, and the economy. The *Qurʾān*, which is the holy book of *Muslims*, refers to this trend in various verses. Sometimes detailing the social and economic behaviors, the *Qurʾān* considers it important that economic behaviors comply with religious teachings and adhere to religious orders.

From the *Islāmic* perspective the separation of ethics from economics is undoubtedly one of the most important factors in economic decline and collapse. of countries' economies. For *Muslims*, economic behaviors are influenced by values and ethical beliefs in such a way that all microeconomic and macroeconomic plans and behaviors must be carried out with the aim of refining and purifying the soul. Besides, ethics affects economic health, and the desired economic behaviors in *Islām* also play a significant role in spiritual and ethical cleansing and vitality. Economic issues in *Islām* are based on an epistemological triangle whose three sides are made up of God, humans, and the world, where the type of relationship between the Creator and the world and humans on the one hand and the fundamentals of *Islāmic* anthropology on the other hand, determine how one views economy and behaviors around it. This distinguishes the *Islāmic* economic school from other economic schools. Therefore,

the economic school designs and offers solutions to economic problems based on accepted religious understandings and values.

Islāmic economics, which is a scientific discipline, seeks theoretical-experimental analysis of known economic realities and possible economic facilities in the light of *Islāmic* principles, which are free from colonization. This is done to discover the most efficient tools for enhancing production, its equitable distribution, and a consumption that is balanced and legally defined from the *Sharīʿah* perspective, as a result reducing economic problems and improving human life. One of the important issues regarding the consumption of goods by *Muslims* is the consumption of *halal* goods and food, which has been repeatedly emphasized in the *Qurʾān*. *Halal* products refer to food whose consumption is permissible in *Islām*. "*Halal*" is also the collective name of trademarks (brands) that are marked on food products. This name is derived from the meaning of *halal* food mentioned in *Islām*, which was first introduced as a label for *halal* food and products. In recent years, this food trademark has globally been introduced by *Islāmic* countries as an independent identity and has been embraced even in non-*Islāmic* countries.

Since *Muslims* make up about 25% of the world population, the annual global market of *halal* goods and services provides a good prospect for trade even by non-*Muslim* countries. The *halal* food and goods industry are referred to in the religious texts of *Muslims* and the *Qurʾān* in several references and verses, and it has repeatedly been emphasized that forbidden (*haram*) food has a detrimental effect on the human body and soul. For example, we can refer to *Surah Al-An'am* verse 145, *Surah An-Nahl* verse 114 to116, *Surah Al-Ma'idah* 3 to5, *Surah Yunus* verse 59 and *Surah Al-Baqarah* verse 168.

This religious thought has led *Muslim* countries to define the word "*halal*" as a standard and create an independent identity for *Muslims* in *Islāmic* countries. Therefore, according to *Qurʾānic* teachings and the view of *Muslim* researchers, the introduction of religious thoughts and beliefs in economics has led to the creation of an *Islāmic* economy which has two parts: an economic doctrine and an economic system. *Islāmic* economics is defined as a series of fixed economic principles and policies inferred from the *Qurʾān* and *Sunnah* (traditions of the Prophet Muhammad *ṣal-Allāhu ʿalayhi wa sallam*). The *Islāmic* economic system also involves adaptation of these principles to different local and temporal conditions and contains economic systems and solutions based on these principles but in accordance with the unique requirements of each period (Kamarudin and Kassim, 2022; Ariffin, Kassim, and Razak, 2015; Sufian,2006).

Muslims are commanded to consume *halal* and live a pure livelihood. The frequent emphasis and advice of *Islām* on consumption according to their religious beliefs have led to the creation of an *Islāmic* economic system based on the implementation of religious and *Islāmic* methods. In *Muslim*-majority societies religion plays an important and influential role in determining the share of the household consumption bundle. Since the religious and pious people manifest a kind of religious-social behavior based on their beliefs, which play an important role in determining the composition and consumption bundle of the household; therefore, considering the large number of *Muslims* in the world, their role in consumption and economy is undeniable, and investigating this matter can be of great help to policymakers.

In general, by taking a look at religious teachings, *Qurʾān* verses, and the traditions of the *Islāmic* culture, this article looks at the economy and economic issues from a perspective of religion and religious thoughts in *Muslim* countries such as Iran. By separating household consumption expenditures into consumption expenditures of *halal* goods (goods whose consumption is permitted and recommended by custom and religion of the individuals) and non-*halal*, this study examines the relationship between religious thoughts and their role in the economy of Iran and households' utility and also examines the impact of household and economic behaviors when the share of these goods in household consumption expenditures is changed using the DSGE or dynamic stochastic general equilibrium model.

2. LITERATURE REVIEW

Past studies point to the close relationship between religious teachings and economics in *Islāmic* societies. Some *Muslim* thinkers define *Islāmic* economics as the study, extraction, and application of *Islāmic* propositions and principles in economics. Another group considers *Islāmic* economics as research on achieving *Islāmic* goals in economics. In some other studies, *Islāmic* economics is referred to as the study of economic problems and solutions in *Islām*. Some other thinkers have described *Islāmic* economics as the study of human behavior (*Muslim* humans) in choosing and making decisions. Still, others offer a composite definition for *Islāmic* economics, in which *Islāmic* economics consists of investigating problems, goals, behaviors, and measures of *Islāmic* economics (Furqani, 2018).

Islāmic economics is a path that *Islām* seeks to follow in the economic aspect to achieve justice. It is a body of knowledge and the application of criteria and rules of *Sharīʿah* (divine *Islāmic* laws) that prevent injustice in the acquisition and access to material resources. Its goal is to ensure the satisfaction of individuals and enable them to fulfill their commitments to both God and society. In essence, Islāmic economics is a path prescribed by *Islām* for individual and social behavior in the economic domain, and examining *Islāmic* laws in this context (Hasanuzzaman, 1984).

Islāmic economics comprises the school, system, and science of the *Islāmic* economy. The economic doctrine of *Islām* consists of general rules for regulating economic relations in the three areas of production, distribution, and consumption, aimed at alleviating difficulties and achieving economic objectives (Hasan, 2013).

The *Islāmic* economy is an economy that governs a society based on religious teachings, and its institutions operate according to *Islāmic* principles. Members of this society also believe in *Islāmic* values and follow the *Islāmic* path in their daily lives (Attia, 2008).

It refers to a system that organizes the distribution of wealth and income among all members of society, providing opportunities for earning income and benefiting from it. The laws and guidelines are shaped based on the *Islāmic* economic school, striving to present a suitable model for improving social life with the help of *Islāmic* teachings (Akram Khan, 1984).

Islāmic economics is a science that studies how to meet human needs, individually and collectively, by utilizing resources according to *Islāmic* principles and frameworks. *Islāmic* economics is an attempt to formulate a human and social economy that rejects the prevalence of individualism in classical economics (Haneef and Furqani, 2011).

It is a science that seeks human prosperity by allocating scarce resources in a manner consistent with the purposes of *Sharīʿah,* while not imposing any unnecessary restrictions on individual freedom, not causing persistent macroeconomic and ecological imbalances, nor weakening the family and moral spirit of society. *Islāmic* economics is a science that studies the best possible way to use the available economic resources as divine blessings to produce the maximum possible amount of *halal* goods and services needed by society both now and in the future, and aims at distributing these products fairly based on the *Sharīʿah* framework and principles (Zaman, 2009).

Islāmic economics is a composite social science that studies the problems existing in production, distribution, and consumption

within the combined system of exchange and transfer over time and its social and ethical consequences from an *Islāmic* rationality perspective. *Islāmic* economics is a social science that studies the economic problems of people who are affected by *Islāmic* values (Azid, 2010).

Hence *Islāmic* economics is an approach to interpreting and solving human economic problems based on values, norms, laws, and institutions derived and extracted from *Islāmic* epistemic sources. *Islāmic* economics is the *Muslim* thinkers' response to the economic challenges of their time. In this effort, they use the *Qurʾān*, *Sunnah*, intellect, and experience (Haneef, 2013).

Islāmic economics is a set of economic principles and foundations presented by *Islām* in the texts of the *Qurʾān* and *Sunnah*, as well as economic methods, plans, and solutions adopted by government authorities based on these principles. *Islāmic* economics is the study of the economic behavior of real *Muslims* in a society which is based on the *Qurʾān*, *Sunnah*, consensus (*ijma*), and analogy (*qiyas*). *Islāmic* economics is the study of typical *Muslim* behavior in an *Islāmic* society (Zarqa, 2003).

Besides that, *Islāmic* economics is the study of the economic behavior of men and women as individual economic actors, the behavior of societies, and that of collective phenomena. The study of problems, goals, behaviors, and *Islāmic* economic measures includes economics and economic rules as well as analytical and executive economics (Tavakoli, 2020).

Most *Muslim* economists who analyze the behavior of *Muslim* consumers have examined the factors affecting budget allocation and consumption of *Muslim* individuals based on *Islāmic* teachings. Since adhering to God's rights and resource allocation from an *Islāmic* perspective is highly important according to religious beliefs, it has been studied by *Muslim* economists, including studies by Hasan (2002), Hossain (2014), Omar Mohammed (2011), and Yasser (2016).

One category of studies based on conventional economic literature within the framework of *Islāmic* economic models considers the religious constraints governing the behavior of *Muslim* individuals. Among these studies conducted by *Muslim* economists, we can mention the following:

Kahf (1980) addresses the definition of rationality from the perspective of *Muslim* consumers, their different time horizon compared to others, and consumer behavior from an *Islāmic* perspective. His study suggests that *Muslim* consumers have a longer time horizon compared to others, which can be attributed to their belief

in the afterlife. A *Muslim* individual chooses afterlife benefits in case of conflict between worldly and afterlife interests.

Studies by Fahim Khan (1984) and Hasan (2005) introduce an aggregate consumption model in *Islāmic* economics by distinguishing macroeconomic consumption function groups within an *Islāmic* framework. They design consumer behavior based on needs and state that belief in the afterlife causes consumers to allocate a portion of their assets to religious matters. Thus, the afterlife enters their objective function, and assets are allocated accordingly. *Muslim* consumers balance their goals between this world and the afterlife when considering their expenses.

Coşgel and Minkler (2004) and Bulbulia (2004) examine the effect of religious identity on consumption and state that religious individuals adjust their behavior within the framework of their interests in the supernatural world. Belief in the supernatural world and the afterlife leads to behaviors termed as religious behaviors.

Studies by Iqbal (1985) and Thornton and Helms (2013) define utility as the satisfaction derived from any action that pleases God. Therefore, *Muslim* consumers, followers of religions with salvation criteria, and households with religious beliefs draw a different personal consumption indifference curve by applying restrictions related to *Islāmic* laws, hence limiting the choices of *Muslim* consumers.

Dadgar and Ezzati (2002), Hadavinia (2019), and Dadgar and Bagheri Todeshki (2001) state that just as humans save part of their current income in hopes of increasing future utility, they also spend another part of their income, believing in life after death, in hopes of gaining greater utility in that period. These studies also declare that in *Islāmic* societies where most individuals believe in *Islāmic* principles and values, and *Islāmic* law is implemented, most individuals act rationally in terms of behavior. Therefore, for *Muslims* whose goal is to achieve maximum worldly and afterlife pleasures, consistent behavior is that which aligns with religious instructions. On this basis, Muslim consumers, like any other consumer, seek to maximize their utility, but since the ultimate goal of every *Muslim* is to gain God's satisfaction, they consider themselves obliged to observe *Islāmic* commandments. To this end, in addition to maximizing worldly pleasures, they have a complete view of afterlife pleasures and prioritize religious expenses based on religious teachings in society. Therefore, utility is divided into three main parts: first, material utility derived from consuming material goods; second, spiritual utility from

doing things for God's sake; and third, utility from the assurance and peace of mind resulting from the second type of actions.

In comparing *Islāmic* and non-*Islāmic* economic studies, it is clear that serious conflict exists between Western culture and *Islāmic* culture in terms of lifestyle. The definition of a good life in *Islāmic* culture is based on afterlife-orientation and the role of worldly life as preparation for the afterlife, which is the main goal and real life stemming from faith. This is in direct contrast to Western culture, which is based on hedonism and aims at worldly life enjoyment. On this basis, it can be said that the *Islāmic* perspective focuses attention on certain behaviors and economic consumption and prioritizes them, while these same aspects are either not considered or not prioritized in the Western perspective.

3. MODEL AND METHODOLOGY

Religion can be an influential and important variable in the economics of each country. The role of religious tendency and religious thoughts on households and their community and economic performance is very vital. Hence separating household consumption expenditures into two parts -- *halal* and non-*halal* consumption expenditures -- can show that religious thoughts influence *Muslim* societies and can affect the country's economy. This paper applies economic studies to rebuild a model for studying the relationships between religion and economics. This model investigates *halal* goods consumption expenditures of households, sketches and describes the variables and then examines households' utility status and economic performance by showing how changing the share of *halal* consumption expenditures in Iranian societies affects the economy in general.

This paper considers an open economy like Iran's economy with a representative household with religious beliefs and affiliations, a firm and a government using the DSGE (dynamic stochastic general equilibrium) framework. The model is an extension of an economy for economic performance analysis. Also, the basic model is an economy DSGE or model similar to models proposed by several economic studies that assume a model with DSGE framework to examine an economy's response to unanticipated and permanent terms of trade shock such as Christiano, Eichenbaum, and Evans (2005), Christiano, Trabandt, and Walentin (2011), Tavakoli (2020), Izadi (2023a; 2023b; 2023c; 2023d; 2022a; 2022b; 2022c; 2021**),** Izadi and Shirafkan Lamsoo (2022), Nasrindoost et al. (2021), Ghaseminasab et al. (2021), Zare et al. (2020), Asghari et al. (2019), Manzoor and

Taghipour (2016), Taghipour and Manzoor (2016), Javan-Noughabi et al. (2017), and Tavakolian and Komijani (2012). For this purpose, it is considered this economy is populated by a large number of identical households (the utility is in the logarithmic form) that receive income from providing labor and capital and choose a path of consumption expenditures and capital investment to maximize their utility given by:

(1) $E_0 \sum_{t=0}^{\infty} \beta^t U(TCC_t, HH_t)$
(2) $U_t = U_t^O - U_t^H$
(3) $U_t^H = \ln(TCC_t^H) + \chi\, ln\,(1 - HH_t)$
(4) $U_t^O = \ln(TCC_t^O) + \chi\, ln\,(1 - HH_t)$
(5) $TCC_t + K_{t+1} = (1 - \tau_H) W_t HH_t + (1 + R_t(1 - \tau_k) - \delta) K_t$
(6) $(1 - \tau_H) W_t = \chi(\frac{TCC_t}{1 - HH_t})$
(7) $\frac{1}{TCC_t} = \beta E\left[(1 + (1 - \tau_K) R_t - \delta)\frac{1}{TCC_{t+1}}\right]$
(8) $TCC_t = \omega TCC_t^H + (1 - \omega) TCC_t^O$

Wherein is U_t utility function of households, TCC_t is total consumption expenditures of goods, TCC_t^H is consumption expenditures of non-*Halal*, TCC_t^O is consumption expenditures of *Halal* goods, ω is Share of consumption expenditures of non-*Halal* (*Haram*) goods in total consumption expenditures and HH_t is labor of households.

(8) $K_{t+1} = I_t + (1 - \delta) K_t$
(10) $Y_t = F(HH_t, K_t) = (e^{a_t} HH_t)^{\alpha} K_t^{1-\alpha}$
(11) $R_t = (1 - \alpha)(e^{a_t})^{\alpha} (\frac{HH_t}{K_t})^{\alpha}$
(12) $W_t = \alpha(e^{a_t})^{\alpha} (\frac{HH_t}{K_t})^{\alpha - 1}$

Where R_t explains the interest rate, Y_t denotes domestic output, I_t denotes gross investment, and K_t denotes physical capital, δ denotes the depreciation rate of physical capital.

Technology shocks are sudden technological changes that significantly affect economic, social, political or other outcomes. In economics, the term technology shock usually refers to events in a macroeconomic model, that change the production function. Usually, this is modelled with an aggregate production function with a scaling factor. Firms use capital and labor to produce goods for consumption, while Government encourages investment and spends on

development. The production technology is a simple Cobb-Douglas function with a sectorial stationary productivity shock and a non-stationary, labor-augmenting technological shock. The growth rate of productivity implies that output per capita and other cointegrated variables grow at the same annual rate. Also, in this model, the productivity shock is the labor augmented technical progress with a following an AR (1) process and Government expenditure shock is the Government spending with a following an AR (1) process are given by:

$$a_t = \rho_a a_{t-1} + \varepsilon_{a,t} \quad (13)$$

$$g_t = \rho_g g_{t-1} + \varepsilon_{g,t} \quad (14)$$

The government sector will collect the revenue through taxes provided by households and firms to the government and then this resource by the government will be provided as collective services and welfare payments to the community. The government has to finance exogenously given consumption. It is assumed that the government operates with a balanced budget and imposes taxes on labor and capital income. The budget constraint is given by:

$$e^{g_t} G_t = \tau_H W_t HH_t + \tau_K R_t K_t \quad (15)$$

For simplicity, it is assumed that the model of this research is a three-sector model based on (1) households, (2) firms, and (3) government. The government sector consists of the economic activities of local, state and federal governments. Finally, the gross domestic production (Market Clearing) and welfare function is defined as:

$$Y_t = TCC_t + I_t + e^{g_t} G_t \quad (16)$$

4. DESIGN, SIMULATION AND DISCUSSION

This paper uses economic studies to build a model for studying the effects of Households' Religious Beliefs on the Iranian Households' Utility. The research considers an open economy with a representative household, a firm, and a government using the DSGE or dynamic stochastic general equilibrium framework. This economy is populated by several numbers of households that receive income from providing labor and capital and choose a path of consumption and capital investment to maximize their utility. We expand a DSGE model for

an open economy and calibrate it on Iranian area data and parameters adapted from the studies done on Iran's economy.

Considering that religion influences economic performance and with religion and its effects viewed as a variable, based on the economics literature of models for an economy with religious beliefs, the research model used the parameter values listed in Table 1 to solve and simulate the pattern. In this paper, we sketch previous studies with a focus on religious beliefs by the parameters in Table 1.

TABLE 1
Calibration Parameters

Parameters	Description	Value	Source	Source
δ	Depreciation rate	0.0139	Zare Shahneh et al. (2020)	Izadi (2023a)
χ	Risk aversion	2	Tavakolian and Komijani (2012)	Izadi and Shirafkan Lamsoo (2022)
α	Capital share	0.44	Manzoor and Taghipour (2016)	Izadi (2018)
β	Discount factor	0.9952	Asghari et al. (2019)	Izadi (2023d)
τ^k	Tax on Capital	0.356	Ghaseminasab et al. (2021)	Izadi (2022b)
τ^h	Tax on Labor	0.047	Nasrindoost et al. (2021)	Izadi (2022b)
ρ_a	Technology Shock Persistence	0.599	Taghipour and Manzoor (2016)	Izadi (2023b)
$\varepsilon_{a,t}$	Technology Shock Standard Deviation	0.016	Taghipour and Manzoor (2016)	Izadi (2022a)
ρ_g	Government Spending Shock Persistence	0.929	Javan et al. (2018)	Izadi (2021)
$\varepsilon_{g,t}$	Government Spending Shock Standard Deviation	0.075	Javan et al. (2018)	Izadi (2022**c**)
G/y	Government Spending	0.125	Tavakolian (2021)	Izadi (2023c)

Table 2 defines the effects of changes in the share of consumption expenditures of non-*Halal* goods TCC_t^H with different values and then reports the quantity of the mean and standard deviation of some variables. According to Table 2, the increase in the share of households' non-*Halal* consumption expenditures in total consumption expenditures (ω), has increased the mean amount and standard deviation of the share of consumption expenditures on non-*Halal* goods, and at the same time, the households' utility function U_t has decreased. Because of the religious beliefs of the community, the utility of society has decreased because the consumption of non-*Halal* goods is associated with lower utility and displeasure for the households.

According to the teachings of *Islām*, there is a fundamental difference in the rational behavior pattern of *Muslims* who believe in a system of rewards and punishments in the afterlife compared to those who frame their behavior solely within the material world. This indicates that alongside seeking their own satisfaction, *Muslims* also consider God's satisfaction. Therefore, they prioritize maximizing God's satisfaction over their own and prefer to benefit from both material pleasures and spiritual rewards. In other words, in most *Muslim* societies, there is a preference for the pleasures of the afterlife and spiritual rewards over worldly and material pleasures.

Similarly, as the share of households' non-*Halal* consumption expenditures in total consumption expenditures decreased, the average and standard deviation of the share of consumption expenditures of *Halal* goods TCC_t^O has increased and, at the same time, households' utility U_t has increased. For this reason, the utility of society has increased, as the consumption of *Halal* goods and services creates higher satisfaction for households, and households would rather consume *Halal* goods and services.

Therefore, the results show that in a society with religious thoughts, the role of *halal* goods in the bundle of consumption goods becomes important and households consume goods based on their religious beliefs. So, in *Muslim* societies, more utility is obtained from the consumption of *halal* and religious goods.

According to verses and narrations from reliable religious sources, the behavior of a *Muslim* individual is based on a kind of spiritual investment that can have positive consequences in this world and the hereafter. Therefore, *Muslim* individuals and households aim at maximizing divine rewards in order to please God.

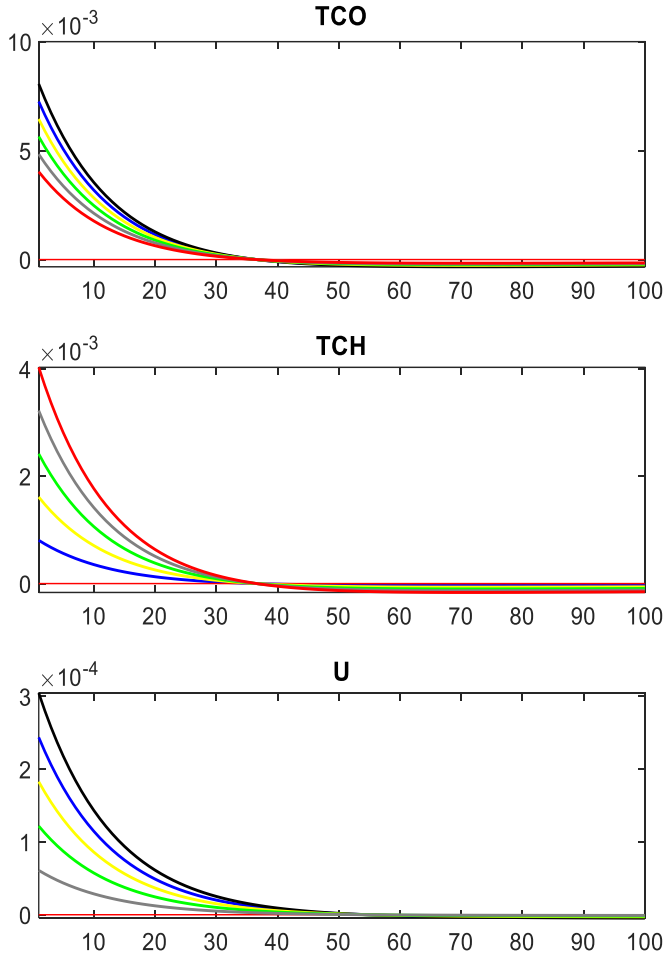
TABLE 2
Moments of Simulated Variables Caused By Changes in The Share of Non-*Halal* Consumption Expenditures

Variable		U_t	TCC_t^H	TCC_t^O
Mean	$\omega = 0.0$	0.0010	0.0000	1.0317
	$\omega = 0.1$	0.0008	0.1031	0.9286
	$\omega = 0.2$	0.0006	0.2063	0.8254
	$\omega = 0.3$	0.0004	0.3095	0.7222
	$\omega = 0.4$	0.0002	0.4127	0.6190
	$\omega = 0.5$	-0.0000	0.5158	0.5158
	$\omega = 0.6$	-0.0002	0.6190	0.4127
	$\omega = 0.7$	-0.0004	0.7222	0.3095
	$\omega = 0.8$	-0.0006	0.8254	0.2063
	$\omega = 0.9$	-0.0008	0.9286	0.1031
	$\omega = 1$	-0.0010	1.0317	0.0000
Std. Dev.	$\omega = 0.0$	0.0049	0.0000	0.0296
	$\omega = 0.1$	0.0039	0.0029	0.0266
	$\omega = 0.2$	0.0029	0.0059	0.0236
	$\omega = 0.3$	0.0019	0.0088	0.0207
	$\omega = 0.4$	0.0009	0.0118	0.0177
	$\omega = 0.5$	0.0000	0.0148	0.0148
	$\omega = 0.6$	0.0009	0.0177	0.0118
	$\omega = 0.7$	0.0019	0.0207	0.0088
	$\omega = 0.8$	0.0029	0.0236	0.0059
	$\omega = 0.9$	0.0039	0.0266	0.0029
	$\omega = 1$	0.0049	0.0296	0.0000

Source: Research findings

Figure 1 shows the shock-impact function of government expenditures in the presence of changes in the parameter of the share of households' non-*Halal* spending ($\omega = 0$ to $\omega = 0.5$) on the utility function of households' consumption. The results of this function demonstrate that the lower the value of this parameter and the closer it is to zero, that means the more share of household's *Halal* consumption expenditures in total consumption expenditures, the weaker the impact of this shock on the TCC_t^H function and the stronger the impact on the TCC_t^O function.

FIGURE 1
Impulse Response to a Unit Government Spending Shock in Model

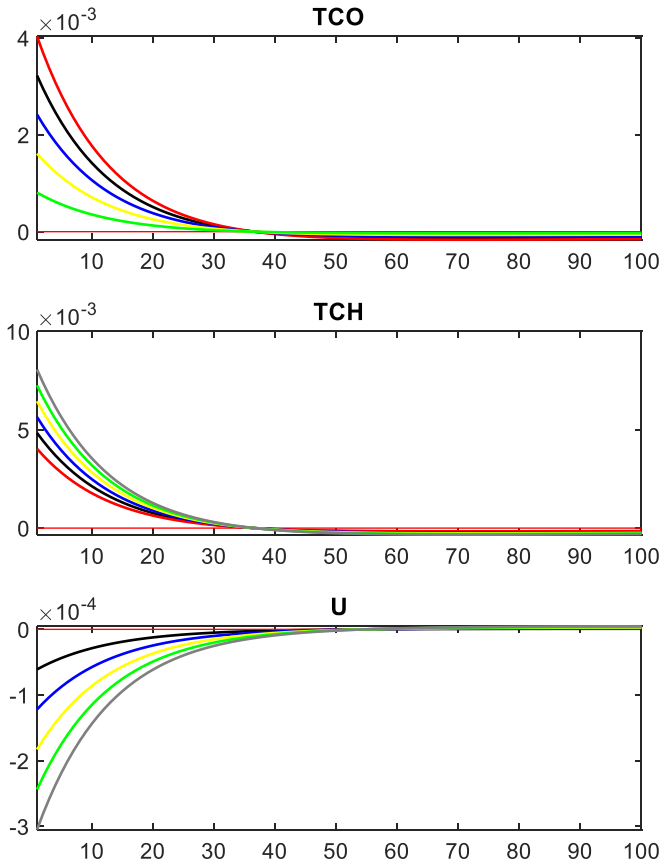


Note. Black Line: $\omega = 0.0$, Blue Line: $\omega = 0.1$, Yellow Line: $\omega = 0.2$, Green Line: $\omega = 0.3$, Gray Line: $\omega = 0.4$ and Red Line: $\omega = 0.5$.
Source: Research findings

The higher the value of this parameter, the stronger the effect of this shock on the TCC_t^H function and the weaker the effect of this shock on the TCC_t^O function. Thus, from these graphs, we can see that the shock effect of government spending on the households' utility

function U_t varies following the change in the share of consumption expenditures of non-*Halal* goods and the consequent change in the composition of the bundle of goods, which is a composition of non-*Halal* goods and *Halal* goods. Depending on which consumption expenditures bundle the households have selected, the shock has a larger effect on the utility of consuming these commodities.

FIGURE 2
Impulse Response to a Unit Government Spending Shock in Model



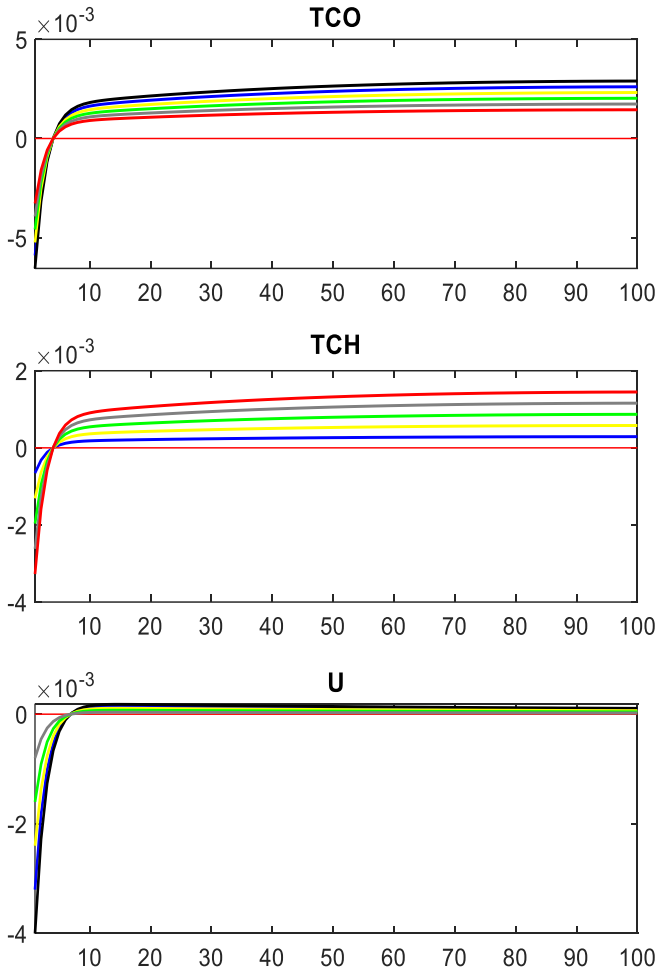
Note. Red Line: $\omega = 0.5$, Black Line: $\omega = 0.6$, Blue Line: $\omega = 0.7$, Yellow Line: $\omega = 0.8$, Green Line: $\omega = 0.9$ and Gray Line: $\omega = 1$.
Source: Research findings

Figure 2 presents the shock-impact function of government expenditures in the presence of changes in the parameter of the share of household s' non-*Halal* spending ($\omega = 0.5$ to $\omega = 1$) on the utility function of households' consumption. The results of this function present that the higher the value of this parameter and the closer it is to one, the stronger the effect of this shock on the consumption variable TCC_t^H and the weaker the effect on the consumption variable TCC_t^O. The higher the value of this parameter, the stronger the trace of this shock on the consumption variable TCC_t^H and the weaker the trace of this shock on the consumption variable TCC_t^O. Thus, from these graphs, we can see that the shock trace of government expenditures on the utility of households' consumption variable U_t varies due to the change in the share of *Halal* and non-*Halal* consumption goods and the resulting change in the combination of the bundle of goods expenditures, which is a combination of non-*Halal* goods and *Halal* consumption goods, which is due to the choice of the combination of the households' bundle of goods.

Therefore, in general, graph (1) and graph (2) demonstrate that in a society with religious ideas, in *Muslim* societies, the share of *halal* goods in the bundle of consumption commodities causes a higher utility and a higher satisfaction for the households.

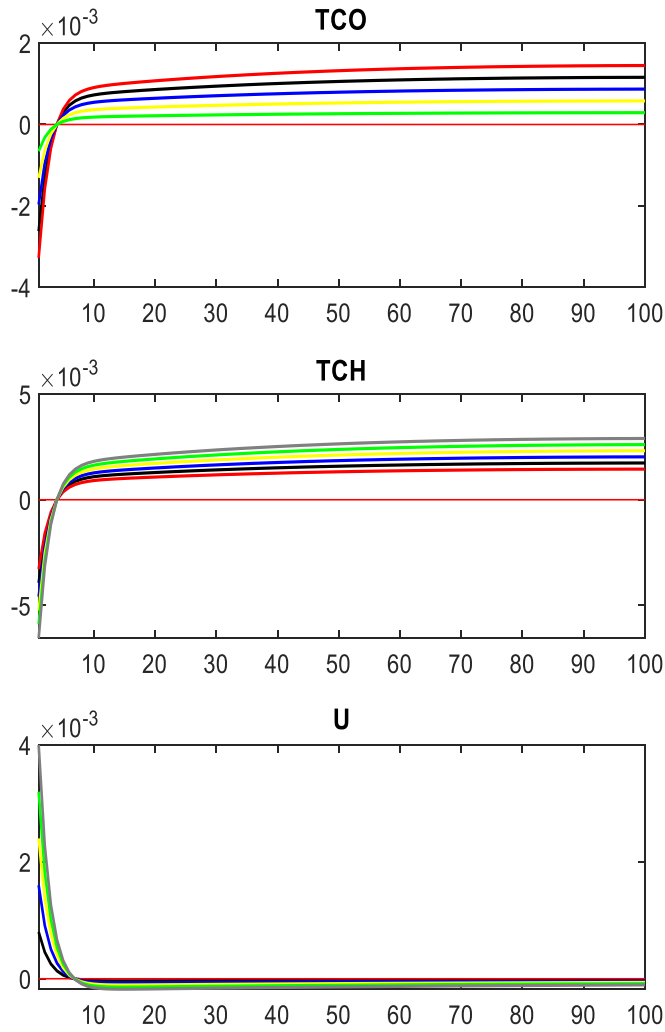
Figure 3 presents the shock function of the response to the technology shock in the presence of changes in the parameter of the share of households' non-*Halal* spending ($\omega = 0$ to $\omega = 0.5$) on the utility function of households' consumption. The results of this function demonstrate that the lower the value of this parameter and the closer it is to zero, the stronger the impact of this shock on the TCC_t^O function and the weaker the impact of this shock on the TCC_t^H function. The higher the value of this parameter, the stronger the effect of this shock on the TCC_t^H function and the weaker the impact of this shock on the TCC_t^O function. Thus, from these graphs, we can see that the effect of the technology shock on the households' utility function U_t will be distinct due to the change in the share of consumption spending and the resulting change in the composition of the bundle of commodities, which is a combination of non-*Halal* goods and *Halal* consumption goods.

FIGURE 3
Impulse Response to a Unit Technology Shock in Model



Note. Line: ω=0.0, Blue Line: ω=0.1, Yellow Line: ω=0.2, Green Line: ω=0.3, Gray Line: ω=0.4 and Red Line: ω=0.5.
Source: research findings

FIGURE 4
Impulse Response to a Unit Technology Shock in Model



Note. Red Line: ω=0.5, Black Line: ω=0.6, Blue Line: ω=0.7, Yellow Line: ω=0.8, Green Line: ω=0.9 and Gray Line: ω=1.
Source: research findings

Figure 4 presents the shock function of the response to the technology shock under changes in the parameter of the share of households' non-*Halal* spending ($\omega = 0.5$ to $\omega = 1$) in the households' consumption and utility variables. The results of this function demonstrate that the higher the value of this parameter and the closer it is to one, the stronger the effect of this shock on the consumption variable TCC_t^H and the weaker the effect on the consumption variable TCC_t^O. The higher the value of this parameter, the stronger the impact of this shock on the TCC_t^H consumption variable and the weaker the trace of this shock on the TCC_t^O consumption variable. Thus, from these graphs, we can see that the trace of the technology shock on the household's consumption variables will be distinct because of the change in the share of consumption goods spending and the resulting change in the mixture of the shopping bundle, which is a combination of non-*Halal* goods and *Halal* consumption commodities, based on the choice of the combination of the households' shopping bundle.

Generally, Figure 3 and Figure 4 display the shock function of the response to the technology shock in the presence of changes in the household's consumption expenditures and the share parameter ω on the households' utility function U_t. The consequences of this function show that the impact of this shock on the household's utility function is negative and reduces households' utility when the lower the value of this parameter is chosen and the closer it is to zero.

The higher the value of this parameter, the more positive the effect of this shock on the utility function of the household U_t and the higher the welfare of the household. Because the share of non-*halal* goods in the goods package of households has increased, the technology shock has increased the production of non-*halal* commodities and services, and as a result, the utility of other households in society decreases with this shock. Accordingly, the lower the value of this parameter, the lower the effect of this shock on the utility function of the household U_t and the welfare of the household. Because the share of *halal* goods in the bundle of household goods has increased, the technology shock has increased the production of *halal* commodities and services, and as a result, the utility of households increases with this shock.

Therefore, in general, it can be said that one of the factors influencing human habits and behaviors is religion and religious norms. *Muslim* economists have made great efforts to examine the macro consumption pattern with an *Islāmic* approach. In this study, since the majority of people in Iran are *Muslims*, based on the principle

of maximizing spiritual and afterlife benefits, and considering the theoretical foundations discussed in *Islāmic* economics regarding consumption, the consumption function changes based on *Islāmic* government laws and *Muslim* population, and the consumption of forbidden goods will lead to a decrease in society's utility.

5. CONCLUSIONS

In *Muslim* societies, paying attention to the economic issues in the basic principles of *Islām* will lead to a strong community that enjoys spiritual and psychological stability as well as progress. The existing *Qurʾān* verses and the traditions on this subject provide a good verbal and behavioral model for individuals, in a way that forms a society moving toward perfection, which is the ultimate goal of religious and *Islāmic* teachings.

For *Muslim* consumers, creating a balance between this world and the afterlife is required. *Muslim* individuals incorporate their level of piety as a factor in their consumption function and seek maximum salvation. Here, salvation is a function of a set of religious, political, cultural, psychological, social, and legal factors in the way of God, and *Muslim* consumers maximize their utility through consumption in this world and gaining rewards in the afterlife by observing *Islāmic* rules.

The current study examines religion's outlook as an influential variable on economic and social outcomes and also studies the role of religious tendency and religious thoughts on household and community economic performance. In doing so, by separating household consumption expenditures into two parts of *halal* and non-*halal* consumption expenditures, it can be said that religious thoughts, in generally *Muslim* societies, play an important and influential role in household utility as well as in determining the consumption bundle and its composition. On the other hand, religion also impacts the national economy by influencing some personal characteristics of its individuals, which in turn can increase people's productivity in economic areas. Work conscience, honesty, ethics, and other human values are also the results of religious thoughts that can affect the economy and saving. Religion, on the one hand, increases public participation in performing religious acts and rituals, while religious beliefs on the other hand influence economic performance. The latter is done through influencing people's characteristics such as work ethic, honesty, and moderation in consumption.

Implementing the *Islāmic* economic style in variables such as consumption and savings in different countries, and considering the effect of religion and attitudes on economic behaviors, are factors that can create fundamental changes in the lifestyle and behaviors of households. Therefore, education and even teaching the *Islāmic* lifestyle and its components in schools, universities, and families can lead to reform of household consumption patterns and effectively influence household savings, as *Islām* brings numerous laws for improving the economy, justice, and equality. Thus, the spread of practical *Islāmic* ethics and religious laws can reduce economic problems of society and help the government in reducing poverty rates. Therefore, individual beliefs, values, attitudes, and religious tendencies all play an important role in shaping human identity and lifestyle.

On the other hand, the multi-billion-dollar global market of *halal* products is a tool to create a common *Islāmic* market and to form solidarity between *Islāmic* countries and members of the Organization of Islamic Cooperation. Through developing international *halal* food standards by experts from *Islāmic* countries, as one of their important actions, this market encourages companies and merchants in *Islāmic* countries to invest more in *halal* industries worldwide. Expanding global demand for implementing *halal* global standards and trading *halal* products in various areas has led to the creation of *halal* food markets, *halal* medicine, *halal* sanitary products, *halal* cosmetics, *halal* tourism, *halal* financial services such as banking, stock exchanges, Sukuk, insurance, finance, *halal* transit, *halal* clothing and *halal* ancillary services such as media, sports and recreation, business and so on, hence promoting growth and improved economic performance.

One of the limitations of this study is the lack of studies and literature on the separation of household consumption expenses into *halal* and non-*halal* consumption expenditure. Future studies may focus on *halal* and non-*halal* consumption expenditures in several countries and survey the share of *Muslim* countries in world economics for comparison.

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