

Towards Divine Economics: Some Testable Propositions

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1. INTRODUCTION

1.1. Background

Throughout the human history, the religion has remained a fundamental feature of social construct and human behaviour. Religious orientation plays important role in shaping human perceptions about economic and non-economic activities. With few exceptions, religion has remained an un-explored area in economics. For most economists, narrative and metaphor have no place in a rational choice theory, which is a wrong belief. In fact, any approach that considers behavioural laws satisfying the criteria of objectivity, reproducibility, and refutability is scientific and falls in purview of rational choice framework. A few studies, however, do exist on economics of religion under rational choice concerning to households, groups, and entire “religious markets”. [Becker (1976); Iannaccone (1988, 1990, 1992, 1993); Mack and Leigland (1992)].

Rosenberg (1985) presents discussion of the limitations of neoclassical economic theory due to its reliance on exogenous differences in taste and preference. It is argued that these limitations cannot be circumvented by findings and theories in other disciplines (e.g., psychology), because any measurement of preferences must begin with neoclassical assumptions about rationality. The alternative to taste-endogeneity advanced by [Becker (1976)] is found to only circumvent the usual difficulties if “stable preferences” notion is interpreted as needs. Further advancement is not taking place because of the important heterogeneous variables, which have yet received little attention from economists. Such variables may be found in attitudes and values acquired by consumers in variety of social and religious environments.

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1.2. Objectives and Organisation of the Paper

This paper has two main objectives;

- (1) to briefly highlight the emerging need to study religion and economics in each other's context;
- (2) to put forward economic propositions which may be considered for future empirical analysis;
- (3) to provide some guidelines for future research on economic behaviour in context of divine religions particularly Islam.

Under the above objective, the paper suggests an outline to model the consumer behaviour, which evolves from divine laws and revelations concerning the economic behaviour of the mankind. Based on the 'divine economics' as one may name it, the individual faces a planning horizon covering the present life and 'life after death'. The approach suggested here may determine the type and magnitude of effects of faith in divine laws on individual's economic behaviour. For example, one may empirically test how time and money allocation decisions are influenced by one's faith. How activities of individuals, groups and sects adopt any particular shape and to what extent these are related with one's economic behaviour. Particularly, one may attempt to see variations in saving, occupational choice, educational preferences etc. across religions and sects. Some available studies confirm that although charity and voluntary behaviours are prevalent among non-believers too, but it is systematically different from the observed behaviour of believers [see Iannaccone (1990, 1993); NSGVP (2000)].

The next section reviews existing work with reference to economics of religion and particularly economics of Islam. Section 3 presents economic propositions emerging from faith in an afterlife. It discusses decision horizons of individuals, the Islamic concept of time and overlapping generations, and implications of differences in religiosity across different groups. Section 4 provides guidelines for future research. Section 5 presents summary and concluding remarks.

2. ECONOMICS OF RELIGION

2.1. Religion and Rationality

Economics of religion is gradually attracting economists' interest. Now some economists are found to believe that religious activities are also based on economic rationality; otherwise they should have not been undertaken [see for example Becker (1965); Azzi and Ehrenberg (1975); Greeley and Durkin (1991); Iannaccone (1988, 1990, 1991, 1992, 1993, 1995, 2000, 2001); Lancaster (1966); Long and Settle (1977); and Mack and Leigland (1992)]. These activities are chosen in the same way

people choose other commodities of choice in order to gaining utility. Iannaccone (1990)¹ presents this view as under;

“We hear and talk these days of “religious markets” and ‘religious entrepreneurs’. ‘Religious consumers’ are said to ‘shop’ for churches much as they shop for cars: weighing costs and benefits, and seeking the highest return on their spiritual investment. ‘Religious producers’, the erstwhile clergy, struggle to provide a ‘commodity’ at least as attractive as their competitors. Religion is advertised and marketed, produced and consumed, demanded and supplied” [Iannaccone (1990), p. 297].

He provides theoretical and empirical reply to those who may dismiss the above analogical statements and finds that economic theory is ‘conceptually clean and empirically fruitful’. According to Iannaccone (1990), people alter their religious choices, identities and motivation levels as in any other markets. Religious commodities do have direct and indirect costs. Their demand and supply is also subject to environment at or state variables. There may exist “cheap” or “costly” religions depending on their demands (or required sacrifices) as compared to promises, which they make to the followers. The religious markets can be monopolistic, competitive, regulated or free.

Some economists have used household production model [Becker (1965)] to explain religious behaviours [Azzi and Ehrenberg (1975); Iannaccone (1986, 1988, 1990, 1992, 1993, 2000); Pollak and Watcher (1975)]. The religious production is viewed as other productive process. Religious satisfaction (output) is determined by (1) purchased goods (2) household time (3) human capital in similar way as meals, health and recreation. However, like recreation, many of religious commodities are unobservable, but their inputs like own time can be measured.

During the past few decades, the level of religiosity has increased in both East and West. Some of the empirical observations have been placed in economic and other literature. Iannaccone provides the evidence on increase in rate of church membership in America in the past two centuries. Greeley (1989) finds that more than 40 percent of Americans claim attending church in a typical week, and this figure has remained largely unchanged since the advent of Gallup Polls in the late-1930s. Surveyed religious beliefs have proved nearly as stable as church attendance. The fraction of American’s professing atheism remains well below 10 percent, and the fraction claiming belief in the Bible, heaven, and hell remains high and nearly constant [Greeley (1989)].

Similarly, church contributions make up more than half of all charitable donations in the U.S. (approximately 60 billion dollars per year), and the majority of nonprofit institutions is or was religiously based. These are the empirically observable realities about which economic theory has yet to say much. These facts

¹Iannaccone (1990).

indicate that religion is not unimportant and therefore uninteresting. It has been a force in the personal, institutional, and political life all over the world in one form or the other in all times of the history.

2.2. Islamic Economics

The main point of departure of consumer behaviour in Islamic economics from conventional economics is the concept of two lives: life on earth and life after death [Nadavi (1994)]. According to Islamic code of life, belief in life after death and the Day of Judgment should have significant influence on economic decision making process of which, for example, time allocation is the most important one. Under Islamic thinking, life on earth is only one (small) part of the whole life. An un-ending life starts after death. "The concept of two lives, in fact is like two phases. The first phase is transitional which begins with the present life on this earth. All of its material conveniences and pleasures will come to an end on an appointed day. From here starts the second phase, the life hereafter which is eternal and endless in terms of life and its pleasure and possessions. This concept of two lives is important to understand in order to explore economic teachings of the Quran" [Nadavi (1994), p. 19].

It is believed that people will be given life again and shall be held accountable for their decisions and deeds performed during the life on earth. There, they will be given reward (may be called highest utility) or Punishment (severe dis-utility) depending on how they acquired and used the resources during life on earth. This belief gives rise to an entirely different perception about planning horizon of a consumer i.e. the consumer considers that the life on earth is not the full life cycle but he/she also includes life after death in the cycle. Hence the lifetime utility becomes sum of utilities of life on earth and utility during the period after death. This aspect of human perception has yet received little attention from economists.

This paper puts forward some economic propositions, which evolve from faith in an 'afterlife'. These propositions need to be empirically tested by economists to capture the time and resource allocation behaviour of individuals under religiosity considerations yet in a rational choice framework. The current paper is confined to outline these proposition rather than testing any specific hypothesis.

3. ECONOMIC PROPOSITIONS EMERGING FROM FAITH IN AFTERLIFE

3.1. Decision Horizon of Individuals and Its Implications

A consumer with high faith in afterlife must have a different way of consuming and producing at the marketplace as compared to the consumer having no or little belief [see Qur'an 2:66; 3:133-35; 16:32; 50:15-19; 78:31-37]. It is the decision horizon of the consumers that shapes their economic behaviour. Mack and Leigland (1992) state, '...Decision horizons are too long, too short, too narrow, or too

fixed to be realistic, even after allowing for constraints relevant to household's capability to think in terms of tomorrow [p. 107].

As stated earlier, the conventional economic theory uses a planning horizon from current period to time of death of individuals or, at the most, it can include the coming generations into the analysis of current economic behaviour of individuals. Hamdani (2002) analyses the implications of different perception on planning horizon: If the individual can consider only current period, his/her saving will be zero. Considering a time horizon till death, one may save something during peak work years for old age requirements but one's bequests will be equal to zero. If one is able to consider coming generations, one's bequests and donations may be positive. This is enough proof that the perception of individual about his/her planning horizon affects his/her economic decisions.

Proposition No. 1: *Any perception about the planning horizon of an individual which takes into account both worldly life and the life hereafter will alter the individual's economic decisions regarding present and future consumption, donations, and bequests, etc.*

Based on the assumption that the expected stream of benefits does not terminate at time of death because most religions including Islam promise their followers some afterlife consumption which is viewed as related to allocation before death.² We proposed³ to systematically incorporate the belief in 'afterlife' as a factor in economic decision making such as allocation of time and goods. This belief, in fact, changes the perception of individuals and their planning horizon extends so as to include their after death period known as purgatory (*Barzakh*),⁴ the Day of Judgment (*Mah'shar*) and the eternal life in heaven or hell (*Jannah or Jahnnam*).

This concept of time horizon with which, a Muslim is usually familiar, has been derived from Qur'an and other Islamic literature. We will discuss later that his/her economic as well as other activities are influenced (consciously or unconsciously) by belief in this type of time horizon. As identified by Hamdani (2002), despite that time may be only a projection of our own minds in this world of relativity, we can view time in at least 3 dimensions for differentiation of ages. These are; (i) *Waqt* that means smaller units of time of such as microseconds, minutes, days, years.⁵ (ii) *As'ar* that means era i.e. sum of various time units like decades, centuries (present era; stone era; pre-history era etc.),⁶ (iii) It is the time that extends

²See Azzi and Ehrenberg (1975).

³See Hamdani (2002), Chapter 3.

⁴It means place of the dead. It starts from death and will end on day of judgement.

⁵An example in Qur'an (2:189) is that "They ask thee concerning the new moons. Say: they are but signs to mark fixed periods of time in (the affairs of) men and for pilgrimage. Another example is (4:103) "When ye are free from danger set up regular prayers: for such prayers are enjoined on believers at stated times" (these are 5 time a day).

⁶The word *Asr* is used in the first verse of *Sura Al-Asr*, "By (the Token of) time (through the Ages)". Abdullah Yousaf Ali in Alim (2002) explains that *Al-Asr* may mean time through the Ages, or long periods, in which case it comes near to the abstract idea of Time.

to the time of non-existence of everything except Allah, the Almighty creator.⁷ From *Da'hr* other categories of time have been evolved. If any careful survey can record it, the difference in perception of time dimensions is likely to display systematic difference in consumer behaviour. Hamdani (2002) shows that a consumer of conventional economics can be influenced by only current generation or some future generation issues because he/she can recognise only one dimension of time *Wagt*. For recognising the effects of an era after the current era and the time beyond all such eras⁸ requires knowledge of other 2 dimensions of time with which a religious individual (particularly Muslim) is usually familiar. Hence religiosity enters in consumer behaviour via perception of time dimensions.

3.2. Concept of Overlapping Generations in the Faith-Model

The concept of overlapping generations refers to individuals of different generations who are alive at a time and may be trading with one another, each generation trades with different generations in different periods of life, and there are generations yet unborn whose preferences may not be registered in current market transactions is known in economics [Samuelson (1958) and Diamond (1965)]. The model has a use in determining the effect of future generations on economic behaviour of current generation through accumulation of assets and bequests etc. Hamdani (2002) presented the Islamic concept of overlapping generations, which is wide in scope and time horizon. It explains the simultaneous existence of various generations in the light of Islamic literature. The concept is reproduced as shown in Table 1.

The above table which is a slightly revised version of the Table 3.1 in Hamdani (2002). He explains various stages of human life as believed in Islam.⁹ The stages of mankind have been shown horizontally from 0 to 7 and the time periods have been shown vertically from 0 to T+1. In period -1, as the Muslims believe that man is in stage 0 i.e. 'non-existence stage'.¹⁰ It was only in the will of Allah to create mankind. In period 0, the souls of the whole mankind are created. For simplicity, we assume that souls of A to N individuals are created.¹¹ In period 1, A is in stage 2 (child) and B, C, D, ..E..N are yet in stage 1 as soul. In period 2, A is young and B is child and C, D, E, ..N are still as souls. In period 3, A is old, B young and C a child. In period 4 A is died and living in a state known as '*Barzakh*', B is old C young and D child and so on. Period 6 shows that A, B and C are died after old age, whereas D and E to N died without completing their full life cycle in worldly sense (child, young, old). In period T+1 (stage 6 i.e. the Day of Judgment), every individual (A..N) will be given life

⁷"Has there not been over Man a long period of Time when he was nothing—(not even mentioned?)" All creatures are subject to Time, but the Creator is not; [Abdullah Yusuf Ali in ALim (2002) Sura Al-Inam 6; Footnote 896].

⁸It is beyond the period when this universe will face the 'big-crunch'.

⁹Some other religions also have similar theology.

¹⁰See footnote 7.

¹¹In a forthcoming paper we will show that individual represents generation also.

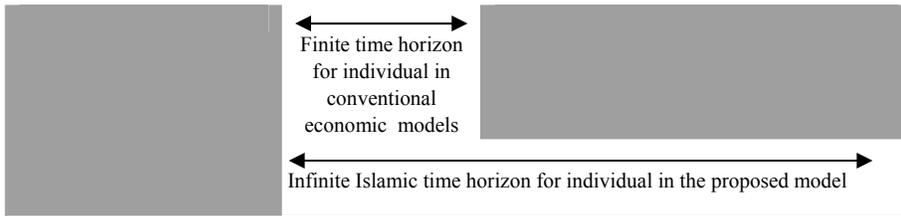
Table 1

Conventional vs. Islamic Time Horizon of a Man (Derived from the Holy Quran)

Period	Stages of Man								
	0	1	2	3	4	5	6	7	
	Before Life on Earth		Life on Earth			Life after Death			
	No Existence	Soul	Child	Young	Old	Died and Living in Barzakh	Day of Judgement	Life in Heaven or Hell	
-1	None								
0		ABCDE..N							
1		BCDE..N	A						
2		CDE..N	B	A					
3		DE..N	C	B	A				
4		E..N	D	C	B	A			
5		..N	E	D	C	B			
6			..N	E	D	C, D, E..N			
T							A		
							B		
							C		
							D		
							E ...N		

T+1

A
B
C
D
E ...N



Source: Hamdani (2002).

again and will be made accountable about deeds, a person performed during stages 3 and 4 (i.e. period of youth and old age, Islam exempts child age from accountability). Based on the balance sheet of good and bad deeds, he/she will be placed in heaven or hell during the 7th stage (period T+1).¹² The length of stage -1, 0, 6, T and T+1 are non-conceivable by the available human perception or scientific capability [see Hamdani (2002), Chapter 3 for details].

¹²The science takes material to be indestructible. The human body made of material exists in one or the other form after death. All the divine religions believe in the existence of an element called spirit or soul which feels the pang of sorrow or waves of happiness. The soul is satisfied if man has achieved the life goal for which the man was created, i.e., living a life in a manner ordained by Almighty Allah and earn His pleasure.

Proposition No. 2: *When other things are constant, a more religious person will have a wider planning horizon as compared to a less religious person and that both will display a systematically different economic behaviour.*

The Islamic concept of time horizon and existence of generations as explained above has several implications.¹³ Obviously, a rational Muslim who, as a belief, accepts all the stages of Islamic time horizon, will take economic decisions keeping in view their pros and cons for at least 3 additional stages of life; (i) the ‘Barzakh’ (ii) the day of judgment, and (iii) the eternal life thereafter. It implies that economic decision making of Muslims consumers must be *systematically* different from others. Also the economic behaviour of a Muslim having high level of religiosity must be *systematically* different from that having low level of religiosity. However, the mainstream economics does not distinguish such consumers from each other. So economist need to identify a new framework and an additional set of parameters to study real economic behaviour of human being.

3.3. Religious Classification of Individuals

Individuals may be observed to have high, moderate and low religiosity levels in Islamic and other religious societies too. In fact a large majority is of believers is found everywhere which does not truly practice respective religious laws. Therefore, to analyse the economic behaviour in religiosity context, Hamdani (2002) suggests some qualitative and quantitative ‘religiosity scales’. These scales may be used to divide the followers of any religion into ‘more religious’, ‘moderate’ and ‘less religious’ groups. These groups are explained below.

We know from our knowledge of history, sociology and Islamic literature that different individuals in every society may be grouped into 3 main or 5 sub groups as shown in Table 2.

Table 2

Types of Individual According to Religiosity Levels

In all Societies		In Muslim Society
1. More Religious	1. <i>Muttaqi</i>	Explicitly and implicitly more pious
	2. <i>Mo'min/saleh</i>	Good/pious
2. Moderately Religious	3. <i>Muslim</i>	Moderate
3. Less Religious	4. <i>Fasiq/aasi</i>	Bad
	5. <i>Fajir</i>	Explicitly and implicitly Bad ¹⁴

For more details on Arabic terms and concepts used in this table, please see Qadri (1994)

Source: Hamdani (2002).

¹³For discussion on the Islamic concept of the stages of mankind from none-existence to life in heaven or hell, please see Muntaziri (1987, p-97-105; 109, 126, 215-17).

¹⁴There is a sixth category, ‘hypocrites’ or opportunist, i.e., *Munafiq*, who is also a Muslim but can pose himself into any of the above five categories in accordance with the circumstances.

More religious people are known to have thoroughly positive attitude, good behaviour, excellent religious practices, honest dealing and dependable personalities. Moderate are those who are known to be Muslims; they act upon many Islamic principles, observe many rules, but also disobey some other rules and are insensitive to teaching of Islam. The less religious are those who are known to be Muslims, casually or partially observing some of the Islamic principles, but are also corrupt, voluptuous ruling and shariha violating.

We also know that each type of person has distinct socioeconomic behaviour although partial similarities would also exist. Moreover, religion certainly affects individuals' and their behaviours. Hence life outcomes in terms of time and monetary inputs and resulting levels of satisfaction differ from one type of individuals to the other. Economist needs to identify and analyse the difference across these groups of people by using some yardstick of religiosity levels.

Proposition No. 3: *When other things are held constant, the economic behaviour of more religious individuals will differ from that of less religious individuals because the former assigns more importance to normative aspects of goods and services to be produced, consumed and traded.*

3.4. The Religiosity Scales

For socioeconomic analysis in religious perspectives, it is important to have data on level of religiosity or religious orientation of people. Obviously, religiosity is a subjective thing and no hard and fast rule exists to measure it. However, Hamdani (2002) develops various quantitative and qualitative indicators, which may be used to measure relative religious strength of a person. For example, offering prayer is obligatory to every adult Muslim in every circumstance (without fail).¹⁵ Therefore, the number of prayers offered in a month out of 150, is one such indicator. Reciting religious hymns/phrases known as *Kalima* and "*darood*" are fundamental to all Islamic acts.¹⁶ A non-Muslim has to recite *Kalima* for converting into a Muslim. A Muslim is also required to keep on repeating this *Kalima* as many times as possible to get more and more purified in faith. Similarly, it has been ordained that all supplications to Allah should start and end with '*darood*'. So reciting more *darood* is an indicator that the person has more religious interest. Similarly, the amount of resources spent in the way of Allah is another quantitative indicator.

¹⁵If the person is not healthy enough to offer prayer in a normal way, he/she is advised to offers in sitting or lying positions or even by gestures only.

¹⁶'Darood' means repetition. It is related to sending 'salam' or glory to the Holy Prophet (SAWA). It is different from 'Zikr' and 'Wazaif'. 'Zikr' is remembrance of Allah the Almighty for the sake of salvation. Wazaif relate to repetition of passage of Holy Qur'an or prescribed words to gain something or to avert some misfortune.

Being conscious of the fact that doing these acts does not necessarily mean that the individual in question is truly more religious,¹⁷ Hamdani (2002) and Hamdani and Ahmad (2002) suggested to use a number of single or multiple indicators (both quantitative as well qualitative). These indicators may be derived on the basis of Islamic classification of activities divided into 5 main categories;¹⁸ (a) *Wajib* or obligatory, (b) *Mustahab* or not obligatory but appreciable, (c) *Mubah* or allowed; neither liked nor disliked, (d) *Makrooh* or not prohibited but disliked and (e) *Haraam* or prohibited. These activities are related to one's beliefs, morals and commandments. 'According to this classification, more religious persons will have higher rates of choosing to act upon all the obligatory activities and most of the *Mustahab* activities and lower rates of choosing prohibited and disliked activities in contrast the less religious people who will act in reverse order. The moderately religious people may have a mix of all. The 'hypocrites' or opportunist can artistically pose to perform *Wajib* or *Mustahab* even when they don't actually like to do so' [Hamdani (2002);¹⁹ Hakeem (1997)], provide a good account of activities which fall under 5 types activities described above (from obligatory through prohibited). All these activities can be produced with the combination of purchased goods, own time and specific skills. However, their choice and extent would depend on the individual's current level of faith in afterlife or religiosity.²⁰

Proposition No. 4: *Religiosity of people can not be accurately measured, however, it can be proxied through 'religiosity scales' by observing/recording the activities revealed to be preferred by the individual in a given setting. When other things are held constant, if an individual chooses to perform more activities out of *Wajib* (obligatory) and *Mustahab* (admirable but not wajib), reflects more religiosity.*

3.5. Implication of Differences in Religiosity across Different Groups

We know from the facts of human life (and other creatures) that it has a minimum and a maximum survival period.²¹ One is unable to die earlier than a specific moment and unable to survive beyond that moment.²² However, we know

¹⁷Any single quantitative indicators may or may not reveal the true religiosity of a person. For example, there is a possibility that a regular performer of prayers may be a dishonest person also.

¹⁸Any daily activity in Islamic (as well as secular) society falls under one of the 5 categories indicated in the Table 3.

¹⁹This is the one reason why socioeconomic data with reference to religiosity of people is notoriously poor.

²⁰Studies concerning church attendance reveal some facts on religiosity and economic behaviour [Iannaccone (1988, 1990, 1993)].

²¹No one was born out of his/her own timetable nor he/she could survive beyond a certain time if one does not want to die.

²²See Qur'an for example 6:2; and 71:4.

from the medical sciences²³ that one can prolong his/her survival period from the minimum survival time to the maximum possible survival time based on his/her health habits, hygiene practices and psychological behaviour. In Qur'an, the minimum and maximum limits of life, fixed by divine in "Loh e mehfooz" which are beyond the control of human being, are known as 'Ajala' and limits attributable to human deeds are known as 'Ajala-e-musamma' (6:2; and 71:4). Both Qur'an and Hadith present a number of parameters, which can prolong one's life (other things being constant). For example, a nice and foregoing behaviour with relatives (known as *Sila e rehmi*) and the act of volunteering are two such things which may prolong one's life [Najfi (2001)].²⁴

The implication of this concept is clear: If the economist is interested in pleasure derived from goods or commodities themselves only, then the conventional value-free economic analysis is reasonable and internally consistent. But if the economist does not ignore the correlation of commodities with their immediate as well as ultimate impacts of consumption pattern on the length and quality of human life, then need arises to identify the religious and other values of individuals causing typical mindsets and typical socioeconomic behaviours. This would lead to formulation of a utility function representing not only the 'economic man' but also the 'real man'. Subsequently, the economic models will include religious variables that can systematically alter the whole economic analysis of more religious and less religious economic agents.

Proposition No. 5: *Human pleasure is not only a function of goods and services consumed, but also of the overall quality of life which is interlinked with the nature of the goods and services consumed (prohibited or allowed). Therefore, a more religious person's utility function must contain some arguments viewed from the perspective of normatively good or bad characteristics of such goods and services.*

In Islam, Allah and the Hereafter are not merely postulates of morality. They determine very much the meaning and content of ethical concepts and values. Moreover, Islam despite introducing moral constraint on individuals lets them free to produce and consume what they want and to the extent they desire. Hence, it does not discourage initiatives. It just channelises the individual towards a destiny-oriented economic activity blended with decent behaviour at the marketplace and lawful efforts for increasing one's wealth.²⁵ Once the individual has accumulated

²³Spiritual science also claims the same.

²⁴Probably because with these two habits, one may gain true happiness, respect and warm behaviour of others.

²⁵Increasing wealth for self-satisfaction only, may lead to greed and corruption whereas increasing wealth for both self and others may lead to content. "Those who spend their wealth for increase in self-purification and have in their minds no favour from anyone for which a reward is expected in return, but only the desire to seek for the countenance of their lord most high—soon will they attain complete satisfaction" (Sura Layl 92; 18–21).

some wealth, Islam guides and motivates him to invest at least part of it to achieve some altruistic intentions.²⁶

Proposition No. 6: *A more religious person clearly knows what is obligatory (Wajib), prohibited (Haraam) or allowed (Halaal). Hence, he/she will consume, produce and accumulate assets in an ordained manner. Therefore, he/she is likely to leave behind more 'intentional bequests' and 'donations' as compared to a less religious person.*

Some guidelines are placed below to model the faith based economic behaviour. Using the suggested framework, such propositions may be empirically tested.²⁷

4. GUIDELINES FOR FUTURE RESEARCH

To model the consumer behaviour who is maximising his/her lifetime utility through allocation of scarce time (24 hours a day), one may start even with a general Neo-classical model or the Home production function suggested by Backer (1965). However, as suggested in an earlier studies [Hamdani (2002); Hamdani and Ahmad 2002, 2002a)] it can be extended in order to systematically incorporate the proposed planning horizon i.e. 'life after death' under relevant religious concepts. The model was called 'Faith Model'. The formulation of the 'faith model' is discussed below. The consumer problem under the faith model is to:

choose: [the amounts of time and money to devote to market activities, personal care and leisure, home activities, societal activities and religious activities]

to maximise: [the utility from accomplishments of objectives relating to both body and soul]

subject to: [income and total time budget constraint].

A multi-stage budgeting process is suggested for this type of study.²⁸ The individual of faith-model is rational in conventional sense except that his planning horizon includes the afterlife also. That is, he/she chooses activities or commodities (good or bad) which maximise his/her total satisfaction of this life and afterlife from alternative use of available time (24 hours). He/she may have some religious and normative characteristics²⁹ as it is required to succeed current life or life hereafter. Therefore, he/she is likely to substitute some part of personal consumption (C) to charitable donations (D) and part of his/her market time (M) and personal leisure time (P) to religious activities (R) and voluntary activities (V).

²⁶Islam clearly guides the individual that he/she has to go empty handed from this world regardless of his/her volume of accumulated assets; therefore, he/she should remain contented.

²⁷see Hamdani (2002).

²⁸For details, see Hamdani and Ahmad (2002a) and Hamdani (2002).

²⁹These are measured by a scale between zero and 100.

With this background, the utility function under of the proposed model appears to be of the form;

$$U_1 = f[M, L, H, V, R]$$

where

U = satisfaction from daily activities (working, sleeping, enjoying, volunteering or praying) of individual human resource.

M = time allocated to wage/market activities like job in government or private organisation, running own enterprise or farm, working part time, managing household, working casually as commission agent, consultant etc.

L = time allocated to personal passive leisure like rest and sleep. It is net of total leisure minus the time allocated to collective/active leisure or home production (h) like sharing with wife, gardening and cooking, coaching to children, watching TV along with family etc.

V = time allocated to voluntary work for benefit of human being.

If the money value of the market activities M is translated into commodities (consumption and donations), we can write this utility function as

$$U_2 = f[C, D, L, V, R]$$

which is maximised subject to an income and time constraint (24 hours a day).

Here C is vector of commodities used by the individual for his/her own/family needs and D is vector of commodities used for satisfying needs of other human being (called charitable donations). If this utility function for period t is strictly quasi-concave, linear-homogeneous in non-committed quantities, quasi linear-homogeneous in gross quantities and multi-stage budget approach is followed, Hamdani (2002) derives the following demand functions in three stages (detailed derivations of each stage may be obtained on request):

$$Z_j^* = C_j^\circ + F_j^C(W_j, W_j + P_j, W_j + Q_j) \left(\frac{1+r}{1+\delta} \right)^{j-t} \frac{H_t + A_t - H_t^\circ - A_{nt}^\circ}{\sum_{j=t}^n (1+\delta)^{t-j} + \beta + \gamma}$$

where Z_j is demand for j th activities such as consumption, donations, voluntary work, leisure and religious participation, which may be chosen from the available daily time.

Any specific equation such as one representing to time allocation for religious activities under this formulation will look like;

$$R_j^* = R_j^o + F_j^R(W_j, W_j + P_j, W_j + Q_j) \left(\frac{1+r}{1+\delta} \right)^{j-t} \frac{H_t + A_t - H_t^o - A_{nt}^o}{\sum_{j=t}^n (1+\delta)^{t-j} + \beta + \gamma}$$

The demand functions consumption, donation, leisure, voluntary work and religious activities as derived from this formulation give the relationship between time-allocation variables leisure (L= active leisure + passive leisure),³⁰ voluntary work (V), and religious activities (R) and a number of socioeconomic and demographic variables like age (A), wages (W), expense on religious activities (P), expense on voluntary activities (Q), rate of interest (r), subjective discount rate (δ), financial human capital of a human resource (H), and present value of assets at time of death which may be divided into bequests and donations at the time of death.³¹

This formulation indicates that to maximise utility, a rational Muslim will forego some part of personal consumption and leisure in order to enhance others' consumption and leisure. Moreover, the time he/she will allocate to religious and voluntary activities may result in reduction in consumption and leisure due to having lesser time available for market work and earning. Moreover, a Muslim is required to divide time among all (not some) of these activities (market work, social or voluntary work, religious duties, personal leisure and home time because Islam ordains him/her to keep balance in all acts. However, proportion may vary across individuals, sects and different population groups in accordance with the relative needs or normative settings. Identification and economic analysis of such social and religious factors is a task yet to be undertaken empirically by the economists.

5. SUMMARY AND CONCLUDING REMARKS

The present study heavily draws from earlier work attempted to discuss certain economic propositions, which originate from one's religious behaviour [Hamdani (2002) and Hamdani and Ahmad (2002)]. These propositions throw light on some heterogeneous variables affecting consumer behaviour, which have yet received little attention from economists. The paper also provides some guidelines for future research on religiosity and economic behaviour. The paper suggests an econometric procedure to model the consumer behaviour, which evolves from divine revelations concerning the economic behaviour of the mankind. Under the divine economics, the individual faces a planning horizon covering both the present life and 'life after death' in contrast to the conventional economics, which bears no

³⁰Leisure has two forms; (a) passive leisure that is rest and sleep; and (b) active leisure that is watching TV, sharing with wife, or gardening etc.

³¹The complete econometric derivation of the proposed model that integrates the religious (particularly Islamic) behaviour into traditional utility theory to determine the effects of standard economic variables on time allocation behaviour under various religiosity conditions is available in Hamdani (2002, Chapter 5).

significance for afterlife. Based on the propositions and approach outlined by the present paper, the future research may determine the type and magnitude of effects of religiosity on, for example, time-intensive activities of individuals, groups and sects. Particularly, one may attempt to see variations in economic behaviour such as earning, saving, occupational choice, educational preferences etc. across religions and religious sects or individuals with varying levels of religiosity.

We conclude that to maximise total utility of current and afterlife from all the different activities, a consumer is likely to substitute some part of personal consumption to charitable donations and part of his/her market time, personal leisure time and home time to religious activities and voluntary activities. Besides this substitution, he/she is also likely to proportionately divide time among all (not some) of these activities (market work, social or voluntary work, religious duties, personal leisure and home time because Islam ordains him/her to keep balance in all acts. However, proportion may vary from person to person in accordance with the relative needs or normative settings of the people under study. Thus, with inclusion of such variables in the economic analysis, the scope of economic model expands further to cover the taste-differences in observed religious, charity and voluntary behaviour.

The proposed framework offers many advantages; (i) it provides opportunity to analyse income, substitution, and cross effects for resource allocation between religious and other activities (ii) it does not dichotomise Islamic economics and rational choice theory (iii) it provides thought provoking propositions which may be focussed by economists for further empirical testing in future (iv) the resource allocation pattern suggested by the faith model which addresses accomplishments of goals relating to both body and soul of mankind is general in the sense that it represents the fundamental principle of all divine religions and paves the way for emergence of a 'Divine Economics'.

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Comments

The paper has attempted to put forward certain economic propositions which stem from an individual's religious behaviour. The authors therefore discuss consumer behaviour which evolves from Divine revelations in terms of a planning horizon covering the "present life" and "life after death".

The authors no doubt have put forward thought-provoking ideas but the concept of "Welfare state" in the Islamic paradigm is not explicitly mentioned. The concept of community-based linkages needs to be attended in view of their interdependence. The other aspect which relates to measuring religiosity needs to be looked into more objectivity as the proposed "Faith Model" is based upon this basic proposition.

Although charity and voluntary behaviours are prevalent among non-Muslim also, the authors may need to identify a new framework and an additional set of parameters to study real economic behaviour within assumptions of rationality.

Lastly, in terms of the proposed "Faith Model" the authors need to test the Second-order Condition and other properties of the functions.

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