Faith Based After Life Incentives in Philanthropic Behavior

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ABSTRACT:

After a long time economists recognize the importance of the neglected philanthropic factor in economic literature yet remained around the tax price, warm glow, public good etc. Caring of others for nothing is a divine prevalent value among all human beings from the advent of socialization of human society throughout the history. Religious orientation reinforces the philanthropic activities and has been ignored even in 21st century, very few studies are found in this regard. This paper presents an empirical analysis of religion and philanthropic activities by using the Divine Economics Framework and Pakistani primary data of 817 households collected through *Divine Economics Survey (DES)[1] 2009*. The religiosity levels of respondents have been scaled and religiosity index has been formed to estimate the faith based econometric model of philanthropic behavior. The Probit, bivariate and Tobit techniques have been used to explore the impact of individual's religiosity level on philanthropic activities of an economic agent. Faith based afterlife incentives are found having significant economic consequences and lead to a different systematic individual's economic behavior in philanthropic activities than an assumed rational economic agent as in conventional economics. This paper concludes that more religious individuals perform more altruistically than less religious ones.

Note: The derivations and regression estimations can be provided by the author on request.

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Introduction:

Philanthropy and philanthropic behavior is one of the prominent and interesting fields of research in economics right from Becker's (1974) article. A number of scholars have attempted to explain this phenomenon with socio-demographic and other arguments.[2] In fact religious orientation has vital role in shaping individual choices regarding economic and non-economic activities (Hamdani, 2004). It is evident that all religions generate a particular 'morality' in its followers and believers; and this morality runs through in almost every action of the follower of that religion. Anderoni (2004) notes that, "Humans are, after all, moral beings. Perhaps our behavior is constrained by moral codes of conduct that make our choices unexplainable by neo classical model of well-behaved preferences and qusi concave utility functions".

The act of caring for others by allocating resources like time or money or both looks non-market behavior and hence contradictory to self-interest based consumer choices. Peoples around the world volunteer time and money for caring of others. Uncovering rationality behind this behavior is becoming a researchable area among the present day economists.

The study of human behavior and actions, in various situations, is the subject matter of all disciplines of social sciences and economics, being a social science, is no exception. Economists have long standing thirst to understand that how economic actions are shaped and what consequences are inherently attached to some particular economic decisions taken by an individual, a group of individual as a nation. The variety of human actions, choices or decisions under similar circumstances is the base of continuous research in predictive economics[3]. According to L'ari (2008), "a man can get favorable environment for peaceful life only in affiliation of eternal life against this transitory and uncertain worldly life. Such environment is available in cooperation, brotherhood, kindness and caring of human beings in the society. This is the only source of the pleasure of Allah".

Caring of others for nothing is being acknowledged now by the economists in economic literature after a longtime since Becker (1974) but the analysis has been remained yet around the social capital, tax price, warm glow, public good, impure altruism, social acclaim, conscience good etc. by [Becker (1974), Anderoni (1888,1989, 1990, 1996, 2001, 2004, 2011), Schwartz (1970), Sugdan (1982), Barry Cheswick (1991), Bekker and Weipking (2007, 2010), Brown and Ferris (2004), Freeman, R. B. (1997, 1993)]. The religious orientation reinforces philanthropic activities which have been ignored even in the 21st century. "Caring of others is a divine prevalent value among all human beings from the advent of socialization of a society of human being throughout the history" (Hamdani, 2004). The obligatory philanthropy is a part of worship in all the divine religions of the world particularly *Zak'ah* is one of the five pillars which

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1.For example Pencaval(1986), Miller et al. (1995), Berman(2000), Azzi and Ehrenberg (1975), Becker (1976),Iannaccone (1992), Menchik and Weisbrad (1987) and NSGVP (2000).

3. Term used by A. K. Sen (1987)

maintain the faith of Islam[4] and Tithe obligatory in Christianity. The conventional economists have overlooked an important aspect of economic behavior regarding philanthropy that originates from or is reinforced by religion. What is needed then is to explore this interrelationship in detail using scientific process. That would include hypothesizing a priori relationship and testing it. It is most likely that a study in this area might provide an important link between theory and practice, ultimately leading towards economic prosperity and wellbeing due to enhanced philanthropic activities. For example, the following two quotes from Iannaccone (1998) invite attention:

> "According to the prominent sociologist Gerhard Laski (1963), sociology was thus from its inception…… committed to the positivist view that religion in the modern world is merely a survival from man's primitive past, and doomed to disappear in an era of science and general enlightenment".

> "Never mind that the secularization thesis is wrong; it has spawned body of stylized facts that few dare question. For example: that religion must inevitably declines as science and technology advance; that individuals become less religious and more religious skeptical of faith based claims as they acquire more education, particularly more familiarity with science; and that membership in deviant religious groups is usually the consequence of indoctrination leading to aberrant values, or abnormal psychology due to trauma neurosis or unmet needs. Most people know these statements to be true, even though decades of research have repeatedly proved them false".

This was the context from where economics draws its sentiments about religion and its impact on individual's economic life. Another fact, drawing economists' attention towards the analysis of philanthropic behavior is the empirical evidence; in USA roughly $174.5 billion[5] were given in philanthropy during the year 1998, which is about 2% of the total GNP of USA. According to a latest survey, total philanthropy in Pakistan was about Rs.170 billion, and if the estimates of animal sacrifice, worth Rs. 320 billion every year on the eve of Eid uz Zuhaa is included, the total philanthropy becomes Rs.490 billion which is approximately 3% of GNP of Pakistan, which is the highest rate in the world.

Philanthropic activities are not possible without allocating time and resources for these activities. Moreover, the time allocation for such activities will be competing with market time. The wage rate changes may change the time allocation among labor market time and other activities including religious, social, philanthropic, leisure and so many others, known as non-market factors. Keeping in view this context, the study is aimed to formulate a model for the analysis of

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[4]. In the Holy Qur'an the importance of Zak'ah can be realized from the fact that in eighty two verses allied with and is second to Sal'ah (prayer); "establish regular Sal'ah (prayer) and give Zak'ah and obey Allah and His Messenger", (Qur'an 33:33), similarly in another verse "And We made them (descendants of Abraham) leaders, guiding by Our command, and We sent them inspiration to do good deeds, to establish regular Prayers and to practice Zak'ah; and they constantly served Us", Quran (21:73)

[5].Andreoni (2001).

philanthropic behavior in the framework of *Divine Religions,* particularly Islam; and to test the hypothesis that *does religiosity impact philanthropic behavior?*

Apart from the introduction, the paper is organized as follows. Section II reviews the previous literature on the subject; section III delineates the theoretical model of philanthropy under religious orientation of an individual, while section IV presents the estimation methodology and the data along with issues involved. Section V discusses estimation results. The conclusion and policy recommendation are given in section VI.

2. The Literature Review

"There is a growing concern among economists to study economics that deals with the real man having some religious motives for an economic activity" (Hamdani, 2004). According to Becker (1976) that "there is a disparity in the traditional decision modeling" and Hamdani (2003 b) rightly states that, "there seems a dichotomy between conventional economics and economics of religion including Islamic economics despite the fact that economics of religion can go hand in hand with rational choice theory or even ahead of it. Particularly, Islamic economics has a great potential to serve as rational theory rather than merely a theological interpretation as presently understood by the West. The basis of this claim is that the Islamic economics is based on divine revelations, hence is more capable of satisfying any 'rationality' criteria. However, there is a need to remove the dichotomy between the two alternative disciplines by using the framework and language that both can understand".

The philanthropic behavior "relates to labor supply decisions directly through time allocated to voluntary services or indirectly through time allocated for earning and then donations out of these earnings" [Hamdani (2004)]. "Whereas the conventional economics has tried a variety of models to estimate the relationship between wages and time allocated to market labor supply but found that results mostly do not speak of the real world situation" [Deaton (1980)].

George (1980) formulated a system for capitalism based on biblical morality and concluded that "in the present age continuing economic crisis, moral and religious principles must be infused into the economic system". It is a common observation that economic variables of decision making are mostly affected by the religion of the individual having awareness about life in the world before death and after the worldly life having faith by the followers (Jews, Christians and Muslims). Majority of the world population consist of these followers. In divine religions, much emphasis has been given on charity to the followers' particular in Islam. The Holy Prophet Mohammad, peace be upon him and his progeny, says; "On the Day of Judgment everyone will rest under the shadow of his charity until the matters are settled between the people".

Chiswick (1991) argued that in mainstream economics it is assumed that consumer is sovereign, rational and maximizes his utility / minimizes his cost, only considering market variables while all non-market variables are blocked outside the analysis. Now the variables which were ignored

in the analysis have gained greater importance again since Showartz (1970), Becker (1974), Azzi and Ehrenberg (1975). These scholars have used "charitable" or "philanthropic" activities as a main determinant of consumer's utility function.

Philanthropic approach has been modeled by some economists as public good theory while some introduced it in the model as social capital. It is very tough to consider philanthropic behavior avoiding the thought of altruism which comes to mind at once; actually altruism is a vital and important feature of philanthropy. Iannaccone (1998)] believes as follows:

> "Religious activities are also based on economic rationality. People choose religious activities in the same way as other commodities are chosen in order to gain optimal utility".

Further, Brooks (2004) also concludes as:

> "religious belief pushes up certain types of philanthropic activities and the people who regularly practice their religious activities give and volunteer more – and more often – than those people who do not practice any religion".

Smith, et. al (2004) examines the relationship between religiosity and the decision to volunteer labor [like Azzi and Ehrenberg (1975) and Iannaccone (1992)], by maximizing a utility function based on consumption on religious activities on contrary to Freeman (1997), where the individual receives additional utility from their consumption of philanthropic commodities. N'araqi (2007) says that spirituality is the extreme of religiosity and that cannot be gained without generosity. Because of commonalities among the divine religions, the Divine Economics compares and contrasts the philanthropic behavior in such religions.

L'ari (2008) says that "kindness, good deeds and to please others are such pleasures which are not available to everyone in the world, according to a famous proverb "as you sow so shall you reap".

It is clear from the literature survey that there is abundant theoretical literature on philanthropy but very few empirical studies exist. Most of the economists consider philanthropy as non-economic and unselfish behavior. According to Andreoni (2005), "Philanthropy is the greatest puzzle for economists; a science based on precepts of self-interested does not easily accommodate behavior that is so clearly unselfish. How can unselfish behavior be reconciled with self-interest"? World Values Survey is a very large dataset and on the basis of this data most empirical studies have been analyzed Government grants crowding out public contribution, or tax rebate. Similarly a Survey on Giving has been analyzed by Brown and Ferris (2004), "social capital and philanthropy", on the basis of Social Capital Community Benchmark (SCCB) survey data conducted in 2000. The authors have used the strategy of Micro foundations to examine the relation between social capitals. In Pakistan Divine Economic Survey (2000) was conducted by Dr. Nisar Hamdani, as a Ph. D scholar at that time, which is a pioneering study of its nature in Pakistan to analyze the religiosity impact in decision making of an economic agent.

The other study Divine Economic Survey (2006)[6] was conducted to analyze the impact of religiosity in rehabilitation of earthquake (2005) affected people of Pakistan.

The present study extends the Divine Economics Model to further explore the interrelationship among economic decision making, philanthropic behavior and religiosity particularly in Islamic perspective. Since the previous studies in Divine Economics, have not estimated the direction or magnitude of such relationship empirically, therefore, the present study shall attempt to fill this gap.

3.   Theoretical Model

This study offers primarily an alternate methodological approach that considers the behavior of real man regarding philanthropy. An individual having faith in divine religions derives utility from allocating his/her time and financial resources in activities relating to satisfaction in worldly life as well as satisfaction in hereafter life. Such type of time allocation involves in the following activities;

- Time to produce commodities for consumption in this life, denoted by 'q_c',
- Time to consume for leisure, denoted by 'q_l'
- Time to spend on satisfaction and self-purification known as religious activities, denoted by 'q_r'
- Time to produce philanthropic commodities 'Ph' for caring of others by giving gifts or donating money or commodities to other people or supply labour voluntarily, denoted by $Ph(q_d, q_v)$.

It is an established fact that every economic agent may have some social or global objectives, that are related with others, therefore , economic decisions of individuals are not only influenced by prices, wages, income and other economic factors but also by the context bound factors and societal norms. Thus, equilibrium quantities would be determined by including non-market factors also.

With the background stated above, following utility function can be defined increasing in all the arguments:

$$U = u\big[q_c, q_l, q_r, Ph(q_d, q_v)\big] \qquad\qquad (1)$$

The economic agent maximizes the utility function subject to the constraints of time and financial resources. Summarizing, that an economic agent faces the problem of choosing the amounts of time devoted to market activities, personal/household's care activities, religious activities and philanthropic activities.

The commodities are partitioned in to two subgroups. Group 1 explains the maximization of sub utility from selecting appropriate quantities in that group, and includes q_c, q_l and q_r, while the

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[6]. The study was conducted by Syed Nisar Hussain Hamdani in the fellowship given by Labor & Work Life Program Harvard University.

group II consists of philanthropic activities i.e. donations and volunteer time to others with no immediate returns, neither monetary nor social, other than defined by one's religion[7].This partition is designed due the following facts:

- In the real world economic agents define their preferences in such a way that personal consumption of commodities comes first that is $q_c, q_l \ and \ q_r$ are determined first subject to their respective prices and share of total resources.
- This sequential decision making facilitate the analysis of joint determination of money donation 'q_d' and time donations 'q_v'.
- Since the main objective of this study is to analyze the philanthropic behavior in time and resource allocation[6], this type of partition is inevitable for the analysis.

From a technical view point, the utility function is additive, which is an extreme form of Separability. In this type of function each sub group of commodities constitutes a separate branch. Thus if any sub group is considered, the demand for a commodity in that sub group can be written as a function of the prices of the commodities in that sub-set and total expenditure on them. The prices of the commodities outside the sub group are relevant only because they affect total expenditure on the commodities in the sub group. "As a matter of fact, the additivity hypothesis is more reasonable when applied to broad categories of goods than the individual goods", Pollak and Watcher, (1975).

Under the injunctions of divine religions an economic agent has been attached with intrinsic and extrinsic values of donation of time and monetary resources/commodities. This value may vary subject to the prices of other commodities, income and time constraints, and the level of religiosity. So it is assumed that a proportion of total time and income resources are deemed to be spent on these commodities, i-e time and money donations are assumed to be non-negative.

As a matter of procedure, the optimization problem takes place in two stages. In stage one economic agent optimizes the utility of sub group $U_1 \ (q_c, q_l, q_r)$ subject to time and financial resource constraint and to the given level of utility of the sub group $u_2[Ph(q_d, q_v)]$. In the second stage the components of philanthropic activities i.e. time and money donations are determined separately subject to their prices and pre-allocated budget share for these commodities.

Utility function is of an individual is defined as:

$$\max U \left[q_c, q_l, \ q_r, Ph(q_d, q_v)\right] = F \left[u_1 \left(q_c, q_l, q_r\right) + u_2 \left(Ph(q_d, q_v)\right)\right] \qquad (\ 2)$$

It is assumed that utility function is increasing in each of its arguments, continuous and double differentiable, monotonically transferable and Homothetic function.

Utility function is maximized subject to time and budget constraint, U^* will take the form:

$$u^* \left(q_c^*, q_l^*, q_r^*, Ph^*(q_d^*, q_v^*) \right) = F\left[u_1^*(q_c^*, q_l^*, q_r^*) + u_2^*(Ph^*(q_d^*, q_v^*)) \right]$$

U^* is the maximum attainable utility level , q_c^*, q_l^*, q_r^* and $Ph^*(q_d^*, q_v^*)$ are optimal quantities subject to time and resource constraints. Faith based model of an economic agent has been introduced by Hamdani (2004), in which symbols of arguments were used such as C, L, R, D and V, the same symbols has been used in this study as subscripts for quantities 'q'. The utility of subgroup 1 u_1 (.) is maximized at stage 1 as follows:

(a) Optimal Allocation at Step I

$$\max U_1 = u_1 (q_c, q_l, q_r) \ {-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}(3)$$

Subject to

$$q_c + wq_l + (w + p)q_r = E^\emptyset \ {-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-} (4)$$

$q_c = $ Composite consumption commodity, so prices are normalized as one.

$w = $ wage rate of labour supply.

$p = $ Explicit cost of religious activities q_r ; $'w'$ as opportunity, calculated on the basis of the wage rate of market labour supply and it has been assumed exogenous in the system.

$q_l = $ leisure time measured in units of time, and its price is set equal to wage rate adjusted for tax and related expenses denoted by $'w'$.

$E^\emptyset = $ Share of income including all resources available allocated to the subgroup one. Necessarily it is defined as:

$$E^\emptyset = 1 - \ E^{\overline{\emptyset}} \ where \ E^{\overline{\emptyset}} \text{ is pre allocated share of resources for subgroup 2.}$$

For the optimal allocation of expenditure share $E^\emptyset$ at stage one, the representative economic agent maximizes the utility function (1) subject to the budget constraint(2). Denoting Lagrangian multiplier by $'\lambda'$, the Lagrange function is given by:

$$\mathcal{L} = u_1(q_c, q_l, q_r) + \lambda_1 \left[E^\emptyset - \{q_c + wq_l + (w + p)q_r\} \right] {-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-} (5)$$

The respective demand functions for q_c, q_l, q_r and indirect utility function have been derived can be had from author.

(b) Optimal Allocation at Step 2

In the 2nd step consumer faces the problem of optimal allocation of time and monetary resources on donation and volunteer labour work q_d and q_v subject to their respective prices (costs) P_d and P_v respectively. Thus, optimization problem can be written as follows:

$$\max U_2 = u_2(Ph(q_d, q_v)) \ \ \ \ {-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}\,{-}(6)$$

Where u_2 (.) is increasing in each of its arguments, quasi concave, twice continuously differentiable,. Moreover, the sub utility function $U_2(q_d, q_v)$ is assumed to be quadratic in q_d and q_v and a local approximation to an arbitrary utility function as in Di Nardo (1992).

$$U_2\big(Ph\,(q_d, q_v)\big) = \alpha_* + \alpha_d q_d + \alpha_v q_v + \alpha_{dv}\, q_d q_v + \frac{\alpha_{dd}}{2} q_d^2 + \frac{\alpha_{vv}}{2} q_v^2 \dots.. \quad (7)$$

Where

α_* = Constant and exogenously determined when philanthropy is zero.

α_d = Marginal utility of money donation[8] when $q_d\ = 0$

α_v = Marginal utility of time donation when $\quad q_v\ = 0$

α_{dv} = Parameter, which determines whether money donation and volunteering labour supply are Frisch complement($\alpha_{dv} > 0$) $or\ Frisch\ substitutes\ (\alpha_{dv} < 0)$. The parameters

$\alpha_{dd}\ and\ \alpha_{vv}$ are showing declining marginal utilities, and will be negative in the standard quasi concave case.

The representative economic agent faces the following constraints;

$$P_d\, q_d + P_v q_v =\ E^{\bar{\emptyset}}\ , \qquad\qquad while\ q_d\,, q_v \geq 0 \qquad\qquad --- (8)$$

The solution to the program in equations (6) and (7) is characterized by the Kuhn-Tucker conditions. Denoting the Lagrangian multiplier by 'ʎ', this function yield following four possible solutions or regimes to the consumer's philanthropic behavior problem:

i.   Do not donate time or money in philanthropy.
ii.   Donate only money for philanthropy.
iii.   Donate only time for volunteering labour.
iv.   Donate both time and money for philanthropy.

Choice-1 (both no money or time donation)

$$\varepsilon_d > T_d \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad -(11)$$

$$\varepsilon_v > T_{dv} \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad -(12)$$

Choice-2 (Money donation only)

$$\varepsilon_d + \left(\frac{\alpha_{dv}}{\alpha_{dd}}\right)\varepsilon_v < T_d + \left(\frac{\alpha_{dv}}{\alpha_{dd}}\right)T_v \qquad\qquad\qquad\qquad\qquad -(13)$$

$$\varepsilon_d > T_d \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad -(14)$$

Choice -3 (Time Donation only)

$$\varepsilon_v > T_v \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad -(15)$$

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[8]. $When\ q_d = q_v = 0\ and\, \alpha_d, \alpha_v$ are marginal utilities of respective commodities means the standard or the ideal level of utilities formed under all intrinsic and extrinsic values, knowledge, assessment and expected utility to be gained after performing philanthropic activity. It will determine the flow of money donations and volunteer time for labour towards philanthropy.

$$\varepsilon_v + \left(\frac{\alpha_{dv}}{\alpha_{vv}}\right)\varepsilon_d < T_v + \left(\frac{\alpha_{dv}}{\alpha_{vv}}\right)T_d \quad ----------------(16)$$

Choice-4 (Both Time and Money Donations)

$$\varepsilon_d + \left(\frac{\alpha_{dd}}{\alpha_{vv}}\right)\varepsilon_v < T_d + \left(\frac{\alpha_{dv}}{\alpha_{vv}}\right)T_v \quad ----------------(17)$$

$$\varepsilon_v + \left(\frac{\alpha_{dv}}{\alpha_{dd}}\right)\varepsilon_d < T_v + \left(\frac{\alpha_{dv}}{\alpha_{dd}}\right)T_d \quad ----------------(18)$$

The random components ε_d and ε_v follow a joint normal distribution:

$$\varepsilon_d, \varepsilon_v \sim N\,[\,0, \Sigma\,] \quad -------------------------(19)$$

Where

$$\Sigma = \begin{bmatrix} \sigma_\alpha^2 & \rho\sigma_\alpha\sigma_V \\ \rho\sigma_\alpha\sigma_V & \sigma_V^2 \end{bmatrix}$$

For each state[9] $'i'$ at time 't' the probability of being in each of the four choices are obtained by integrating ε_d and ε_v over the range defined by the participation condition. These probabilities are then used to formulate the log-likelihood function.

So far, we have derived an econometric model displaying the decision mechanism regarding philanthropy. An estimable stochastic model has also been specified for this econometric model. In the coming section these models have been used to analyze impacts of religiosity and other related variables on the philanthropic behavior and four choices of volunteer time and money donations have been derived by using Kuhn Tucker technique.

4.   Estimation Methodology

The econometric model of consumer behavior derived in the previous section is not appropriate for direct estimation due to a number of reasons which are a) the behavior of the proposed consumer is shaped by religious beliefs, societal norms, and a set of moral values prevailing in a religious society. All these factors alter the 'valuation' mechanism which in turn extremely affect the amount of 'utilities' attached to particular quantities of goods and services. The final outcome would be a different 'choice' system and demand pattern, expressed by such a consumers. The real difficulty lies in the fact that the impact of religious beliefs, norms and set of values is, at least, difficult to measure precisely, if not impossible. b) This difficulty is multiplied for a researcher when he/she finds very little support from the existing discourse. It is a reality that extremely limited literature is available on religious perspective of consumer behavior, especially empirical one. So the present study has to advance by defining, designing and re-shaping many new concepts[10], techniques and methodologies for further use in the

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[9]. The religiosity level of particular individual has been categorized as .high religiosity, moderate or low religiosity level.

[10] Many religious concepts as explained in previous section.

empirical analysis with little background support[11]. There will be a space for improvement in all that is introduced first-time in this study; and finally c) religious beliefs, urge to follow norms and importance of value system are highly "subjective" in nature. To quantify them, one needs to introduce 'proxy' and 'dummy' variables, that is why 'questionnaire' designed for collecting information contain number of "proxy" parameters to measure and quantify "religious" beliefs and their impact on consumer behavior. Another problem in implementing the econometric model to the available data is that the model so developed is for representative individual, while data is collected from households. So there may be lack of correspondence between model parameters and the data collected through "proxy" variables.

In order to overcome all such complexities and to minimize possible effects of deficiencies, we have no other way than to propose an empirical model in place of econometric model, derived in previous section, with modified specifications for some variables, and directly estimate from the data. In the next sub-section the original or modified variables employed in the empirical model with the rationale of their selection are given.

4.1 The Variables and their Rationale

The variables involved in this faith based model of philanthropic behavior have been taken as independent and dependent along with their rationale are explained as each variable used in empirical analysis has been precisely defined.

a) Dependent variables; q_c= Consumption expenditures per capita per annum (in rupees). Expenditures on charitable goods are excluded, q_l= Time in hours per year allocated to leisure i.e. consuming goods and service, privacy, complete rest or sleep (active leisure and passive leisure), q_r= Number of hours over the year allocated to pure religious activities (prayer, reciting The Holy Quran and Munajaat), q_d= Money value of charitable donations (in rupees) during the year, q_v= Number of hours in a year allocated to different voluntary activities like caring for others in difficulty with time[12].

b) Independent Variables; On the basis of personal characteristics, demographic and socio-economic aspects, independent variables are categorized into four groups namely religiosity variables, economic variables, household variable and social variables.

    i)   Economic Variables; 'Y' total income, 'HPCY' household per capita income, 'AST' money value of household assets, 'PCC' per capita consumption annual.

    ii)   Social Variables; R Friends = Religious friends as a percentage of total friends. Socialization = Number of hours spent with relatives, friends and neighbors.

    iii)   Religious Variables; rsh = index for high religiosity, rsm = index for people showing moderate religiosity, R-Index = Religiosity index, calculated from sub-

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[11]. With one exception, Hamdani (2004).

[12]For example thousands of people from all over Pakistan and also from through the world came out to help the people in earthquake areas, Muzaffarabad, Baagh, Balakot, Kaghan Valley etc. during the year 2005 and flood stricken country men in 2009.

religiosity indices considering various aspects of religiosity like beliefs, adherence to religious sensibility, conduct and feelings, S-Index = Spiritual index, it shows depth of religiosity and is computed from 7-sub indices with multiple items.

4.2   Issues and Limitations in Religiosity Index

To be a Muslim is to believe that "Islam" is not mere a collection of some rituals, rather it is complete code of life. Guidance for every aspect of human life is provided in Islam, for example detailed commandments by The God (Allah) and the traditions from the Holy Prophet Muhammad (SAW) are available regarding individual to social life, trade and commerce to charity deeds, national to international and home management cosmic environmental protection activities. That is why it is expected that consumer behavior of a Muslim will be fundamentally different from that of non-believer. Further there would be difference in the conduct. The numeric sub-indices are computed and these sub-indices are used in generating two composite religious indices which are employed in the empirical analysis.

Since faith based Divine Model is new and yet evolving, the religiosity indices introduced in this model are not yet declared as perfect by the pioneers. As Hamdani (2004) mentions, "The religiosity indices are not claimed to be perfect, and exhaustive. There are several issues that limit the scope of these indices. First, different sects of Islam assign varying degree of importance to various practices and beliefs; therefore, constructing unbiased religiosity indices that are used across all sects is a difficult task. Second, most of the nonobligatory worships and philanthropic activities are not explored openly, and respondents hesitate to express because religiously ordained. Thirdly many beliefs and experiences are of abstract nature and, hence, difficult to quantify. Fourthly, in Islam almost all actions are judged by the intention behind them, which can be explored only with deep and prolonged probing of respondents usually beyond the scope of social surveys. It may be argued that different religious behaviors should be assigned different weights, especially when considered with reference to one's intention behind actions. For example if we assign equal weights to a person donating purely for good will of Allah and another person donating for the motive of gaining respect in society, the religiosity indices so defined may not truly measure the difference between religiosity level of the two persons"[13]. So far available work on faith based economics has not suggested any remedy to overcome this problem mentioned above except that many different indicators of religiosity instead of relying on any single indicator should be used.[14]

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[13] According to Hamdani 2004, preparing of more accurate indices is not the job of one scholar. It requires a panel of religious scholars, jurists and experts to assign appropriate weights to different mental, verbal and physical acts in the light of Qur'an, Bible, Hadith and traditions of the infallibles.

[14] We have developed only crude religiosity indices as a starting point. Preparation of any ideally weighted religiosity indices is beyond the scope of the present study due to time and resource constraints. Moreover, preparing such indices is not the job of a single scholar. It requires a panel of Muslim scholars, jurists and experts to assign appropriate weights to different mental, verbal and physical acts in the light of Qur'an, Hadith and traditions of the companions of the Holy Prophet (SAWA) and those who are called the infallibles. For the purpose of present study, we have used Tables 3.2 and 3.3 to construct questions for

4.3 The Survey Methodology and Limitations of Data

The study has utilized cross sectional primary data, especially collected for the purpose of empirical analysis, because no secondary data on divine religiosity, particularly Islamic are available in any of Islamic countries including Pakistan. The case for non-Islamic world is little different because conventional surveys[15] conducted in some western countries include questions on religious aspects, thus facilitating researchers to carry out studies on the role of religion in various aspects of life[16]. The following sub-section discusses the survey methodology and related issues.

Keeping in view the purpose of the study and budget constraints, a random sample was selected to represent the population which includes all Pakistani adults from eighteen years to sixty five year. This was done in two stages, at the first stage three cities from Pakistan and one city from Azad Jammu and Kashmir were randomly selected by using the stratification techniques. The population of selected cities possesses almost all characteristics of Pakistani urban population hence satisfies the criteria of representation. The sampled sites have a variety of characteristics regarding, location, composition of population, economic environment, cultural and class multiplicity and the level of development. For example the city of Lahore is situated in plains, Rawalpindi and Islamabad in arid region, while Muzaffarabad is a mountainous city. Population wise Lahore is the most populated and is regarded in the big city category, while Muzaffarabad is comparatively small city. Islamabad and Rawalpindi stands between the two. Some needed information about the sampled cities is summarized in the following line; the total numbers of household respondents interviewed were 1200, but the final sample size is 817. The difference was excluded from empirical analysis due to technical deficiencies or incomplete questionnaires. The primary data collected through survey have some limitations are as; though any prescribed education of respondents to answer the prearranged questions in the questionnaire was not required regarding personal socio religious factors. The understanding of those questions in the survey was to some extent difficult and complex particularly individual's religious and philanthropic activities are mostly kept secret religiously ordained and the respondents hesitate to explore such activities[17]. Therefore it was noted that there is less response from less educated people that is why to some extent biasedness in data.

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judging strength of one's religiousness. The resulting religiosity indicators may not be fully reliable or exhaustive. A lot more may be done to improve such religiosity indices.

[15] .AKDN (2000), PCP (2000), Hamdani, (DES2002), (DES2006), Helms, S. and Thornton (2010). The authors used USA data of the Centre on "Philanthropy Panel Study (COPPS) in addition to Panel Study of Income Dynamics (PSID)".

[16] . Iannaccone (1988)

[17] In the Holy Bible (New Testament 2002) Page 13 when you give charity then if your right hand is giving **charity** then this act should be so secret that your left hand should not know this act. The Prophet said, "Seven (people) will be shaded by Allah by His Shade on the Day of Resurrection when there will be no shade except His Shade. (They will be), a just ruler, a young man who has been brought up in the worship of Allah, a man who remembers Allah in seclusion and his eyes are then flooded with tears, a man whose heart is attached to mosques (offers his compulsory congregational prayers in the mosque), two men who love each other for Allah's Sake, a man who is called by a charming lady of noble birth to commit illegal sexual intercourse with her,

Secondly, the data of accurate proportion of total population of different sects is not available in our country that is why the ratio of samples could not be observed during survey in this study.

All the divine religions has different tenants of obligatory and non-obligatory philanthropic activities for their followers that the amount spent to serve other people do not recorded by the respondents throughout the year may be less or more based on estimates. Even then the spent amount on charities may be religious based or otherwise, that is why very careful questionnaire is needed in survey.

Since all the divine religions particularly Islam discourages to openly disclose the optional philanthropic activities especially helping people, as tradition of Prophet Muhammad (PBUH), "if your right hand gives charity to any one your left hand does not know". And similar traditions are also found of Christ (AS) in Holy Bible. That is why people hesitate to answer the questions in time and resource allocation regarding religiosity and philanthropic activities. Hence, the recorded information in survey is likely to be undervalued.
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4.4   Descriptive Analysis of Data

The present section explains features and characteristics and the descriptive analysis of the data. For the empirical analysis the data has been collected from 817 households of the Pakistan. Various forms of religiosity indices have been used to examine the philanthropic behavior of an individual regarding the variables explained in previous section. Out of total number of respondents 89.2% are male and 10.8% are female. The proportion of individuals having age less than 20 years and above 60 years is 2.4% and 5.4% respectively. While 82.2% belongs to the age group 20-50 years. Only 4.2% respondents do not have any formal education, whereas 21.7% have education equivalent to 10-year schooling education. Around 11.6% individuals have bachelor's degree and 21.7% possess Master's degree. So it is clear that greater proportion of the sample consists of educated respondents. According to religiosity levels 51% respondents belong to the less religious category, 27.2% to moderate and 21.7% belong to the highest religious category.

The empirical analyses of the philanthropic motives have been found of the present study are the family traditions, social benefits (warm glow, social acclaim), economic benefits, due to friends and relatives and the last one to explain any other than these motives. The respondents have explained themselves Inf'aq Fi SabiLillah (for the pleasure of Allah) that was not asked apparently in the questionnaire to avoid from the biasedness of data as shown in the following table.

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and he says, 'I am afraid of Allah,' and (finally), a man", "who gives in **charity so secretly** that his left hand does not know what his right hand has given, tradition narrated" by Abu Huraira."The best of alms is that which the right hand giveth, and the left hand knoweth not of".

Table # 1   Philanthropic Motives and Religiosity Level

Serial No.	Philanthropic Motives	% of Respondents	Religiosity levels		
			High	Moderate	Low
a	Tradition in Family	12%	31.25%	31.25%	37.5%
b	Social Benefits (warm glow, social)	10%	29.3%	22%	48.78%
c	Economic Benefits	5%	19.5%	29.3	51.2%
d	friends and relatives	22%	28.9%	30%	46.7%
e	Other than above for Pleasure of Allah	50%	35.7%	33.9%	30.%

It is clear from observing above table about the philanthropic motives of the respondents of this study that 50% of the respondents perform philanthropic activities only to achieve pleasure of Allah not for the sake of any other expectations from recipients of donations and those respondents belong relatively to higher level of religiosity i.e. 35.7% while moderate are 33.9% and 30% are the respondents belonging to low level of religiosity. This shows that the people having faith on Oneness of Allah, faith on two lives (worldly and life after death), good and bad deeds, accountability of performance of deeds in worldly life on the Day of Judgment (Youm ul Qayyamah), eternal utility and eternal disutility in shape of eternal Ajr and severe punishment (life in Jannah and Jahannum) play a vital role in economic decision making of an individual particularly in philanthropic activities in Muslim society while in Western countries and US most of the people give for warm glow, social acclaim, tax rebate etc. as majority of existing studies show the results. While in this study respondents are only 10% and 5% of total philanthropic respondents and majority of them belong to low level religiosity as shown in the table.

The following table shows the annual expenditure on philanthropic donations as a percentage of income, across the religiosity sub-groups. All categories of donations show positive correlation with religiosity. The total donations are lowest in low religiosity group (1.41%), highest in high religiosity group (2.81%). Similarly general donations and religious donations also display the same trend. It is clear from this trend that more religious people attach more value to the consumption of goods and services, consumed for others. From this one can safely conclude that religiosity may alter the consumption choices in faith based societies, and more precisely, "religiosity" may be an important factor in explaining the consumer behavior.

Table # 2   Philanthropic Donations by Type & Religiosity Indicator

	Low	Moderate	High
	Religiosity Index – I		
Total Donation	1.41%	2.46%	2.81%
General Donations	0.22%	0.24%	0.32%
Religious Donations	1.20%	2.22%	2.48%
Zakat	0.78%	1.40%	1.48%
Wajab	0.43%	0.83%	1.00%
Number Of Respondents	222	418	177

The data on time and money donations shows that 26.44% (216) of the total respondents give both types of donations, 40.39% (330) households opted for volunteering time only, 7.59% (62) were those who give money donations only and 25.58% (209) give neither money nor time donations. The determinants of these participation rates may be socio-economic, religious and demographic factors.

Table # 3 Participation Rate in Philanthropic activities

		Money Donations	
		Yes	No
Volunteering	Yes	*26.44%	7.59%
	No	40.39%	25.58%

* Calculated as percentage of the total respondents

5.   Procedures of Estimation and the Results

The selection of an appropriate method for empirical estimation is very important for having meaningful and reliable results. As it is clear from the econometric and empirical models that it contains a large number of explanatory variables, of which, some are quite difficult to measure quantitatively; for example variables used for measuring religiosity. Another issue is that equations for q_c, q_l and q_r are not properly parameterized. However the main concern of the study is to identify the determinants of philanthropy in time and money donations and to estimate impact of various personal, social, economic and religious variables on the philanthropic behavior of an individual. So, we have to concentrate on this exercise (philanthropic behavior) and develop q_c, q_l and q_r equations.From the primary data collected through specially designed questionnaire from 817 households, we have selected and defined the following independent variables to be used for empirical estimation.

At the next step the same two equations are estimated simultaneously with SUR (Seemingly unrelated regression) model. Because both the equations contain endogenous variables, that how close conceptual relationship with one another (e.g. Money and time donation). In fact, if, the disturbance terms (ε_d & ε_v) of each equation is uncorrelated, then there is no relationship between the equations, and OLS estimates are appropriate. If the error terms are correlated,

which is expected in the case of both types of donations, the efficient estimates can be obtained using a more sophisticated estimation technique i.e. SUR. The rho value (and ch12 test statistic) will determine the existence of correlation between $\varepsilon_d \& \varepsilon_v$. It is clear that two SUR bivariate probit models are estimated, one without cross-terms and other with cross-terms (i.e. q_v in q_d equation and q_d in q_v's equation).

Finally in search of excellence, two separate Tobit equations are estimated. Because tobit model is an improved form of Probit models and hence more informative. Probit estimates determine the probability of "yes" only from the mixed data, while Tobit deals the variables as binary as well as continuous simultaneously. The result for Tobit estimates are reported in table.

It was expected that all explanatory variables may not turn out to be statistically significant, and factually it happened, so we have used well-known general to specific criteria for selection of variables to be returned in the equations. This selection procedure suggests that one should start from large model including maximum number of potential explanatory variables and then eliminate variables one by one on the basis of t-values (under the null hypothesis that the regression co-efficient is equal to zero)[18].

5.1   The Results and Discussion

This study has confined to test whether "religion" as a variable can have any influence on economic decision making, specifically in resource and time allocation for philanthropic activities and whether different religiosity levels (low, moderate and high) generate different philanthropic behavior in time and money allocation?

The null hypotheses (H_0) are tested that there is no influence of religious, income/wealth or asset and social environment in time and resource allocation on philanthropic activities against the alternate hypotheses (H_1) that these factors have effects on philanthropic activities. We have estimated Probit, bivariate Probit, and Tobit models for testing these hypothesis. At the first step two independent Probit equations for time and money donations have been estimated. Explanatory variables are selected by general or specific procedures.

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[18]All estimations have been run on the econometric packages provided by licensed version of EViews and Strata provided by the University's Computer Science department.

Table # 4   **Results of Separate Tobit Regressions**

(p-values in parentheses)

Dependent Var.	phd		vod	
Ind.variable	Coef.		Coef.	
			-	
y	0.0069865		0.000000153	
	(0)		(0.594)	
ast	0.0079887		-5.64E-07	
	(0.007)		(0.234)	
edu	161.6268		0.0459052	
	(0.272)		(0.019)	
rfriends	-18.09746		0.0124302	
	(0.034)		(0.005)	
rsh	6351.578		1.05095	
	(0.038)		(0)	
rsm	3434.431		0.4592678	
	(0.014)		(0.083)	
vo	175.6895			
	(0)			
ph			0.000022	
			(0.084)	
cons	-4321.737		-2.326336	
	(0.001)		(0)	
sigma	9504.399		2.205793	
Number of observations		766		766
Uncensored obs		524		262
Censored obs		242		504
Log likelihood		-5714.3911		-813.35878
Chi squared statistic		151.18 (0)		51.64 (0)
(H_0:All coefficients except constant equal zero)				
Pseudo R2		0.0131		0.0308

Examining the variable (Y) has significantly positive effect on money donation and negative effect on time donation as income increases the probability of money donation increases while

time donation decreases, this is quite logical and consistent with the literature. This implies that as income increases opportunity cost of time increases which causes reduction in time allocated for philanthropy and marginal utility of money donation increases. The money value of assets (AST) has positive relation with money donation and has no significant effect on time donation. This shows that accumulation of assets positively affects the marginal utility of money donation and does not bear any influence on the marginal utility of time donation. So the relationship continues through all the regressions. That is why one can safely conclude that assets are important in determining the amount of money donation, while time allocation decision is independent of it.

Religious perspective discussed earlier explains this trend. As income and assets increase, spending for others (money) increases via Zak*at, Sadqat, khairat*, and *infaq-fi-sabilillah*.[19] Charities other than religious matters also become possible at high income levels and better asset conditions. It is also evident from the marginal effects, reported in results.

Education level of the respondent turned out to be significant for time allocation decision in philanthropy. Education has positive correlation with knowledge and information, and these have positive effect on one's consciousness of others' problems and issues. Thus consequently alter the time allocations decisions of the individuals. Knowledge and information about others' problems and one's responsibility as ordained by Allah greatly affect the marginal utility of time donations in positive direction. Now the question that why marginal utility of money donation is not effected by the education level? The answer may be that money donation depends not only on the consciousness of others' problems but also on many other economic and household variables. A large family size or and living standards may be the limiting factors. However religiously speaking, visiting the patients and helping others with time bear significant implicit cost, but have great value near to Allah. Again the econometric results for the impact of education are the same in all regressions.

Number of religious friends (R Friends) defines ones' social environment that is why it has significant impact on time allocation for philanthropy. It does not mean that it has no effect on money donation though it proved to be non-significant in case of money donation when Probit and bivariate Probit without cross-term is estimated, but it is significant when bivariate Probit is estimated with cross-terms. Since in the latter case log likelihood improves, we accept these results as more consistent with the data. Moreover the value of rho, which is significantly different from zero (rho=-1, likelihood-ratio test of rho=0   chi2 (1) = 63.2822, prob> chi2 = 0.0000 so null hypothesis that rho = 0 strongly rejected) confirms that disturbances are correlated. So the results of bivariate Probit with cross-terms are superior to that of without cross-terms. The limiting factor may be same as discussed in case of education. Friendship produces conductive environment for like-minded activities. Mutual decisions in the

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[19] These are obligatory and optional spending in Islam.

company/environment of religious friends keep the motivation level high and refresh for caring others the demands of religiosity regarding other family and society members.

Now we turn to the results regarding religiosity levels (low, moderate, high) as determinants of philanthropy. It is a very interesting point to note at each level of religiosity is statistically significant in explaining the philanthropic decisions of each type ($q_d \& q_v$) in all the models i.e. individual probit equations, bivariate probit equations with and without cross-terms and tobit equations.

The probability of being included in both type of philanthropy is positive and significant the co-efficient for moderate and high religiosity levels are significantly different from zero when compared to the reference term (low religiosity) estimates, here captured by the constant term.

Similarly when their error terms ($\varepsilon_d \& \varepsilon_v$) are allowed to correlate, the overall results improves (log likelihood ratio) which confirms the role of 'time donations' in determining money donations and vice versa. The sign of the co-efficient (which is positive) implies that monetary and time philanthropic donations are statistically significant in deciding the probability of inclusion in both the types. Further the amount of time allocation for charity purposes. Their marginal effect increases as we move from 0 to 1 and from low religiosity level (reference category) to high religiosity level.

In short we conclude that religiosity variables along with some economic, personal characteristics, and social variables turn out to be significant in determining the philanthropic behavior of households in time and resource allocation; while some variables, proved significant (e.g. per capita income, household size, consumption, wage rates, age and socialization etc.). The most important conclusion that comes out of the econometric exercise is that the religiosity is as important as other economic, social variables are, in explaining the household's resource allocation choices and the behavior of individuals having different religiosity levels is systematically different from each other, specifically in deciding about the amount and type of philanthropy.

6.   Conclusion
This study is only an endeavor for extension in Divine Economics faith based model by including expanded functional form of philanthropic activities in individual's economic decision making that has been neglected by the mainstream conventional economists. While this study is primarily constructed on the divine religious concepts of afterlife incentives influencing individual's behavior in the worldly life particularly in Islamic perspective. It is a very much clear from the religious literature of economics that practically the faith on Heaven and Hell*(Jannah and Jahannum),* the eternal reward and severe punishment on the basis of performance of deeds in worldly life, brings a systematic change in behavior of an individual for caring of others in time and resource allocation and will be different of the economic agent as supposed in conventional one.

The present study suggests that religious and philanthropic activities are alike those economic factors such as prices and income etc. The statistical results of this study show that more religious individuals have tendencies of interdependent utility functions to sacrifice one's own consumption and leisure to increase other's consumption and leisure through philanthropic activities. This result of religiosity confirms as the results of earlier studies [Hamdani (2003, 2004), Helms and Thornton (2010, 2011), Day and Devlin (1996), Musick et. al (2000), Park and Smith (2002) and Loveland et. al (2005)].

As for as philanthropic motives are concerned relative majority percentage of the respondents belong to high religiosity level donate charity for the pleasure of Allah *(Inf'aq Fi SabiLillah)* although this motive was not apparently mentioned in the questionnaire for the sake of to be avoided from the biasedness while the respondents having other motives of social benefits (warm glow, social acclaim) and economic benefits (tax rebate, subsidies) belong to relative majority percentage of low religiosity.

This study concludes that a more religious person relatively give less time to market activities and give more time to philanthropic activities as compared to less religious persons. Moreover, a person having more financial resources, assets and social environment of religious friends will be more philanthropic and vice versa.

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