Religiosity, gender attitudes and women's labor market participation

 Mirajul Haq[1*], Asghar Ali[2], Iftikhar Ahmad[3], Wajeeha Sajjad[4]

[1,4]International Institute of Islamic Economics, International Islamic University Islamabad, Pakistan.
[2]Applied Economics Research Centre, University of Karachi, Karachi, Pakistan.
[3]PIDE School of Public Policy, Pakistan Institute of Development Economics, Islamabad, Pakistan.

*Corresponding author: Mirajul Haq (Email: haqmirajeco@gmail.com)

ABSTRACT

Purpose: This study examines the impact of religion on female labor market participation and tests the hypothesis that under a specific belief pattern, female time allocation to labor market participation should vary systematically with the change in religiosity level.

Design/Methodology/Approach: The study uses a primary data set of 320 female respondents. The binominal logit model is used to estimate a categorical dependent variable.

Findings: The results suggest that religious women are less willing to participate in the labor market.

Conclusion: There are three different outcomes from the analysis scheme. First, the composite index of female religiosity signifies its negative impact on their labor market participation. Second, the findings of the study reveal that females with relatively higher religious education are less willing to participate in the labor market. Third, females are less willing to participate in the labor market when the head of the household is more religious.

Research limitations: A larger sample is believed to help in better generalization.

Practical implications: Religion shapes human behavior which subsequently influences their economic decisions. Our findings reveal a positive association between females' formal education level and their labor market participation. This entails a government policy to facilitate women in enhancing their education level. Moreover, mainstreaming the religious educational institutes and their curriculum will resolve the misconceptions.

Keywords: *Employment decision, Primary data, Religiosity, Time allocation*

1. INTRODUCTION

Conventional economics primarily focuses on the optimal allocation of available resources.   Hence, the allocation of resources is an important topic in the subject matter of economics. In this context, economists developed well-structured theories and models in order to capture the optimizing behavior of economic units regarding their resource allocation. Like other economic resources, in both micro and macro levels time allocation is modeled in received studies on the subject (Becker, 1965; Gronau, 1973; Mincer, 1962; Schultz, 1961). Generally, studies on time allocation make a broader allocation of available time (24 hours) between labor and leisure activities.[1]

Empirical studies highlighted different socio-economic factors that explain the time allocation of the economic unit among different activities. Precisely, studies on the time allocation to labor market activities broaden its scope, unfold various factors influencing an individual's decision about time allocation among different activities. However, based on the work of Mincer (1962) and Becker (1964); Becker (1965) explains females' labor market participation for the factors that lie in their human capital attributes (i.e. education, experience and health). For instance, Barman (2018); Nieuwenhuis, Need, and Van Der Kolk (2012) argue that education is the key determinant for enhancing the human capital capabilities and job taking capacity of workers. Similarly, like education, empirical studies also argue that health enhances human capital capabilities and the labor market participation of workers (i.e. (Shaheen, Shabir, Faridi, & Yasmin, 2015; Zhang, Zhao, & Harris, 2009)).

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[1] Some studies make a further division of leisure into passive leisure and active leisure.

Besides human capital attributes, empirical studies also probe how financial status and demographic factors explain labor market participation. For example, Ejaz (2007) and Faridi, Malik, and Basit (2009a) stated that household income and demographic factors such as marital status, women's age, household size, religion, geographical location and children's age also influence women's labor market participation decisions. Other writers (i.e. (Read, 2004; Sultana, Nazli, Malik, & Kazi, 1994; Zhang et al., 2009)) argued that women's decisions about labor market participation depend not only on economic and demographic factors but also on social factors such as social environment, cultural norms and risks.

Along with the previously mentioned conventional factors (economic, social and demographic), an economic unit's time allocation should be affected by its religious profile. In this context, an attempt has been made to show off the economic unit's behavior with in a religious framework. For instance, Azzi and Ehrenberg (1975) analyzed household behavior towards time allocation and church attendance. They modeled the derivation of an individual's utility from the allocation of time to religious activities (church attendance) and worldly activities. Afterward, Iannaccone (1990) and Iannaccone (2000) extend Azzi and Ehrenberg's (1975) work and present the concept of religious human capital arguing that along with time allocation, an individual's utility is also subject to religious knowledge, affections, skills, experiences and sensitivities.

At both micro and macro levels,   studies support the statement that religiosity shapes human behavior and therefore, affects human perceptions about economic decision- making (Hamdani, 2004; Iannaccone, 1990; Maneschiold & Haraldsonn, 2007; Mc-Andrew & David, 2011). However, in most studies, the response of religiosity to economic decision -making is analyzed within a specific religious framework. A restricted framework limits their scope and cannot describe the behavior of a common believer.[2] For example, Ahmad (1980) and Zaman (1991) modeled the optimal decision of an economic unit within the Islamic context. Consider the concept of two lives (i.e. life here and life hereafter), afterlife people are responsible for their performed decisions and deeds during their life on earth. Hence, the belief in life after death signifies its role in economic decision making and resource allocation for life on earth (life here).

In view of the limited scope of the existing literature, this study offers a common framework for divine religions (Islam, Christianity and Judaism) and is also generalizable for other types of faith patterns.[3] In this framework, the response of religiosity to the decision-making of an economic unit is hypothesized as *"other things being equal under a specific belief pattern, the decision- making of an economic unit should vary systematically with the change in religiosity level"*. The proposed hypothesis is empirically tested in the economic decision-making of female time allocation. More specifically, the response of religiosity to female labor market participation has been analyzed. In this context, the testable hypothesis is specified as *"under a specific belief pattern, female time allocation should vary systematically with the change in religiosity level"*. The following may justify why the purposed hypothesis is tested in the case of female time allocation (labor market participation):

First, at the macro level, female labor market participation signifies its role in the growth and development processes of both developed and developing countries. Similarly, at the micro level, as a supplementary source of income, the female labor market participation affects the socio-economic profile of the household. Second, the study is based on the case of Pakistan where females constitute almost half of the total population with the majority tied up with the informal sector and non-market activities. Third, and most importantly, owing to a male-dominant nature and other social fabrics in Pakistani society, women are not easily integrated and therefore avoid active participation in the labor market. These features are mostly explained from the perspective of religiosity. Hence, the study aims to empirically analyze how the differences in female religious profiles (at the individual and household levels) affect their labor market participation. The remaining of the study is organized as follows: Section 2 explains methodology, section 3 presents empirical findings and their interpretations and section 4 presents concluding remarks extracted from the findings of the study.

2. METHODOLOGY

The methodology section presents the theoretical framework, the empirical model, the definition and construction of variables under consideration and illustrates the discussion about data source, sample size, area and sampling selection criteria. The last subsection presents estimation techniques.

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[2] The gap in the existing literature is one of the motivations to undertake this study.
[3] Section 2.1 presents a theoretical framework based on the pioneered work of Hamdani and Ahmad (2002); Hamdani (2004).

2.1. Theoretical Framework

One of the primary focuses of conventional economics is the optimal allocation of obtainable resources. In this context, both at micro and macro levels, theories and models are in place to look at the optimizing behavior of economic units regarding their resource allocation. As an economic resource, the allocation of time is also modeled in order to touch upon the optimizing behavior of an economic unit (Becker, 1965; Gronau, 1973; Mincer, 1962; Schultz, 1961). Though, conventional economics is dominated by the concept of '*economic man*' originated in the works of Adam Smith, Ricardo and Mill.[4] For instance, according to Smith, "pursuit of self-interest leads to an efficient economic outcome through the functioning of economic units without any role for moral, religious or spiritual values". In this connection, the above-stated models of time allocation should ignore the role of religiosity in the shaping of economic unit behavior and consequently their decision about time allocation. By excluding religion from the shaping of behavior and therefore, from economic unit decisions, four missing contents that restrict the behavior of real-life economic units should be addressed. First, these models are erected on the underlying assumption that since there is only life on earth, a rational economic unit shall allocate all resources to maximize utility of life on earth. Although this conception is internally consistent, it ignores more than two-third of the population on earth which perceives some form of afterlife. Currently, many people on earth believe in divine religions i.e. Judaism, Christianity and Islam which share a large number of beliefs that have some systematic influence on the economic allocation process.[5] Second, these models deal with humans as having a material "body" whereas the majority of people in the world believe that a human being is a compound of a material body and a non-material 'soul'. Third, taken in the conventional economic framework, these models represent a man revolving around "self" therefore, having less regard for others. However, the human decision-making process is of an integrated nature that has a systematic relationship among religiosity, spirituality, values, wellbeing and regard for others (Hamdani, 2004).

Some initial attempts, as discussed earlier explain the economic unit's behavior within a religious framework. However, these studies come from a particular religion which limits their scope and cannot explore economic unit behavior in a divine framework. Later, Hamdani and Ahmad (2002); Hamdani (2004) developed economic modeling in the divine framework that offers a common model for divine religions (Islam, Christianity, Judaism) and is also generalizable for other types of faith patterns.

In their generalized form, the theoretical underpinnings of these studies developed under the divine Economic framework of Hamdani and Ahmad (2002); Hamdani (2004). Unlike the conventional economic framework which captures just the worldly part of the life cycle, the divine framework considers the two-life cycle (life on earth and afterlife). In addition, unlike conventional economic frameworks which use the planning horizon or can only include the coming generations in the analysis of the economic behavior of individuals, in this model, the future period is extended beyond death. Hence, the instantaneous utility function of any economic unit should take the form.

$$U_i = [U_c^L + U_e^L] \qquad (1)$$

Equation 1 presents the overall lifetime utility (U_i) of the ith economic unit. The overall utility is the combination of the current utility of any action and the expected future stream of utility of any current action (U_c^L) (U_e^L). This can be presented as lifetime utility in current and future life where future life extends beyond death as well due to belief patterns and corresponding perceptions of the people. Therefore:

$$U_i = [U_c^L + U_e^L + U_e^A] \qquad (2)$$

In Equation 2, the total utility U_i is segregated into three components: (U_c^L) the current period utility, (U_e^L), the expected future life utility on earth and (U_e^A) expected utility in the afterlife (U_e^A). According to the Divine Economic framework, the third component of the total utility (U_e^A) is further segregated as:

$$U_e^A = [U_e^P + U_e^J + U_e^E] \qquad (3)$$

Equation 3 indicates the expected stream of total utility in life U_e^P [having two life cycles]. Utility, pleasure or satisfaction from current activity in the period known as Purgatory [Barzakh] denoted by P, day of judgment (Hashr) denoted by J and eternity (in heaven or hell) denoted by E in the following equation after merging Equation 2 in Equation 3.

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[4] The 'economic man,' is assumed that all humans behave as rational agents who pursue their self-interest while making economic decisions.
[5] According to the Divine Economic framework of Hamdani and Ahmad (2002); Hamdani (2004), an agent who perceives an afterlife shall be rational if he allocates resources accordingly in the perspective of life plus the afterlife.

$$U_i = \left[U_c^L + U_e^L + \left(U_e^P + U_e^J + U_e^E \right) \right] \qquad (4)$$

Equation 4 shows the inter-temporal utility of a believer's belief in the life cycle. According to all divine religions the decision of heaven or hell depends on the deeds (allocation decision in this case) carried out during the current life on earth.

Specified the framework for time allocation for a large individual who spent their available time (24 hours) in four main activities namely: market, leisure, voluntary and religious. Hence, the ith individual's utility (U_i) from his or her daily activities should be written as:

$$U_i = f(M, L, V, R) \qquad (5)$$

whereas M denotes the time to allocate to market-related activities, L is leisure activities, V is time allocated to voluntary activities and R is time for religious activities. For simplicity, if all activities are vectors in (A_i), then Equation 5 should take the following form:

$$U_i = f(A_i) \qquad (6)$$

Equation 4 shows the inter-temporal utility of an individual's belief in the life cycle (life on earth and afterlife) which is decomposed into five components. Each component depends on different activities. Hence, by putting Equation 6 into Equation 4, the Equation 4 takes the following form:

$$U_i = \left[U_c^L(A_i) + U_e^L(A_i) + \left(U_e^P(A_i) + U_e^J(A_i) + U_e^E(A_i) \right) \right] \qquad (7)$$

Equation 7 indicates that an individual's utility not only depends on their activities in this life but also on their utility in the afterlife. In this framework, the response of religiosity to female labor market participation should be hypothesized as *"under a specific belief pattern, female time allocation should vary systematically with the change in religiosity level"*. In a specific belief individual time allocation (in abstract form female labor market participation) may be explained by the following two reasons: First, an individual who believes in the hereafter and has a relatively high level of religiosity will allocate his time between worldly and afterlife activities to keep balance in all acts (Hamdani, 2004). Second, when making an economic decision, a religious individual should not only consider worldly life utility but also afterlife utility.

2.2. Empirical Model

Based on the above theoretical underpinnings in this section, an empirical model is presented in order to assess empirically the impact of religiosity on female employment decisions. The empirical model in this study builds upon both the standard conventional time allocation models (Becker, 1965; Gronau, 1973; Mincer, 1962; Troske & Voicu, 2009) and the time allocation models in religiosity (Laurence R. Iannaccone, 1990; L. R. Iannaccone, 2000) and the belief pattern of Hamdani and Ahmad (2002); Hamdani's (2004) perspective. The following equation 8 presents an empirical model.

$$FLMPD_i = \beta_0 + \beta_1 R_i + \acute{\beta} X_i + \varepsilon_i \qquad (8)$$

Where the female labor market participation decision ($FLMPD_i$) is our dependent variable. R_i represents the religiosity level of the ith female which is our variable of interest and covers information about belief, knowledge and practice. X_i is the vector of socio-economic and demographic variables that influence female labor market participation and include female' age, education, health, marital status, family size, income and expenditure and the age of children. ε_i is the error term.

2.3. Description and Construction of Variables

As the empirical analysis is based on survey data, most of the variables under consideration are self-constructed. This subsection presents the description and construction of the variables under consideration in the study.

2.3.1. Dependent Variable

The dependent variable is *Female Labor Market Participation Decision* ($FLMPD_i$) which defines *"the women's decision to be part of the economically active population either working or seeking work"* (Kapsos, Silberman, & Bourmpoula, 2014). Hence, following Kapsos et al.'s (2014) definition, respondents were asked about their decision to participate in the labor market. Keeping in view the nature of the information, the variable is treated as a binary 1, if the respondent is working or seeking work (willing to participate in the labor market), otherwise a binary 0.

2.3.2. Independent Variables

Religiosity (R_i): Since the study aims to investigate the impact of religiosity on female labor market participation decisions, religiosity is the variable of interest among the set of control variables. We developed an index termed *"religiosity"* in order to measure the respondent's religiosity level. The index covers information about religious belief, knowledge and practice. More specifically, the index demonstrates five categories: *belief*, *obligatory worship* (prayers)[6], remembrance/*recitation* of Allah and the Holy Quran, Darood on the Holy Prophet, *practices* (performing everyday deeds) and *awareness or knowledge* of the respondent about the religious differences in performing everyday deeds. These values are measured on scale 1 to 5 (5 for the highest religiosity of the respondent and 1 for the lowest). Therefore, the respondent's religiosity level is constructed by summing the following values:

$$R_j = \frac{\sum_{k=1}^{n}(\text{respnse score on } k^{th} \text{question})}{\text{Total score on } k^{th} \text{ question}} * 100$$

R_j shows the respondent's religiosity index in the jth category, whereas n is the number of questions asked. As we have five categories, the overall religiosity index of ith the respondent would be as follows: [7]

$$R_i = \sum_{j=1}^{5} R_j$$

$\sum_{j=1}^{5} R_j$ is the sum of all five religious categories that a kth respondent carries.

Education (EDU_i): Like other attributes of human capital, education improves the human tendency to participate in the labor market. The earlier studies on human capital considered education the key determinant of human capital enhancing the human capacity of workers to participate in the labor market. This general pattern has been confirmed by numerous cross-sectional and country-specific empirical studies (Ejaz, 2007; England, Garcia-Beaulieu, & Ross, 2004; Nieuwenhuis et al., 2012). Respondent education is measured by the number of educational years completed.

Health (HEL_i): Along with education, health is also one of the important indicators that improve human capacity for labor market participation. The respondent's health is captured as a dummy that takes the value 1 if the respondent has good health and 0 otherwise.

Age (AGE_i): Estimated results indicate that female labor market participation is associated with their age. The findings are in line with the open ended work on women's labor market participation by Mincer (1962). Mincer (1962) argued that as older women most have grown up their children, therefore the possibility of their involvement in labor market participation increases.

Marital Status (MS_i): Being an individual's personal characteristics, marital status affects women's labor market participation. On the one hand, compared to single women, married women have more responsibilities, therefore allocate less time to labor market participation. On the other hand, married women have more financial responsibilities compared to single women hence pushing them toward labor market participation. The respondent's marital status is measured as a dummy which takes the value 1 if married and 0 otherwise.

Household Income (HI_i): Household's financial status is one of the important indicators that affect a female's decision about labor market participation. Therefore, household income is taken as an explanatory variable in the empirical model that is measured with the annual income of household members from both full-time and part-time jobs and income from other sources (shares/stock market, property, agriculture, overseas remittances, etc.)

Household Size (HS_i): Size of the household is another aspect that may affect women's labor market participation. The existing empirical insights hold two different views about the relationship between household' size and female labor market participation. Studies in favor of a negative effect argue that women of large families with many children might not participate in the labor market due to child care and homemaking responsibilities. Whereas studies in favor of a positive effect argue that an extended household might provide support to working women for the care of their babies and children at home. Like usual, the household size is determined by the number of members in the household.

Have Children (CH_i): Holding children is an important indicator that may affect women's labor market participation. Women's labor market participation varies with having a child. For instance, Faridi, Sharif, and

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[6] In Islam obligatory worships are numerous, however, we have taken just prayer (Salaw in Arabic), which is the most fundamental and daily offering is obligatory for Muslims.

[7] We follow Haq, Khan, and Saddique (2015) who have developed an ethical index of the firm's workers.

Anwar (2009b) found that children below school-going age reduce women's labor market participation as in such cases women are devoted to take care of their children. On the contrary, having children might influence one's decision to be financially independent, making females more willing to participate in the labor market. This variable is treated as a dummy that takes the value of 1 if the respondent has a child of school-going age and 0 otherwise.

Head of Household Employment Status (HHE_i): Mincer (1962) maintained that females are less willing to participate in the labor market when the head of households is actively participating in the labor market. In this association, this variable is used as a control variable in our empirical model.

Head of Household Religiosity (HHR_i): Along with the respondent's own religiosity, their labor market participation is also affected by the religiosity of the household head. Following are the two possible reasons that the head of household religiosity level affects the female respondent's labor market participation. First, the prevailing family system in Pakistan is joint system, hence most of the household decisions are collective in nature and household heads play an imperative role in decision-making. Second, Pakistan's society is male dominant, most of the females are not autonomous in their decisions and the response of the household head cannot be ignored. In this context, the religiosity of the head of the household is also used as an explanatory variable. Like respondent religiosity, in the same way, an index has been developed in order to measure the head of the household's religiosity.

To capture respondent's religiosity in its full length, apart from the religiosity index, two other supplement measures have been used namely *Religious Expenditure* (RE_i) and respondent's *Religious Education* ($REDU_i$). The former, religious expenditure includes all types of obligatory Islamic charities (like Zakat, Khums, Fitrana, etc.) and non-obligatory Islamic charities (like Sadaqah, Khairat, Niaz, etc.). Similarly, expenses on religious functions and children's religious education expenses are valued per annum in thousands of PKRs. Whereas, the later *religious education* ($REDU_i$) is receiving different categories of religious education that is Nazira, Hafiza, Qaria, Alima and Darse Nazimi which are measured in years spent on the receiving of these educations.

2.4. Data Sources, Sample Size and Sampling

As secondary data on both dependent variables (labor market participation) and variables of interest (religiosity) is not available, survey-based data is used that was collected from 320 respondents in District Chakwal of Punjab province (Pakistan). Keeping in view the nature of the study, three conditions are placed on the respondents regarding their gender, age and education. More specifically, the respondent must be female, an adult and have at least 12 years of education. In order to collect the desired information, a well-structured questionnaire is designed that contains all the relevant information on respondents' labor market participation, religiosity level and socio-economic profile. As we have some conditions on the respondent, hence the collection of data, the snowball sampling technique is used.[8]

2.5. Estimation Technique

As our dependent variable is female labor market participation which is taken as a binary, the empirical model (Equation 8) is estimated through the binominal logit estimation technique. The logistic regression model shows a relationship between a dependent variable (a binary) and a set of control variables. For example, Y is a binary dependent variable (i.e. participation or not participation) in the labor market with $\{0,1\}$ and p be the probability of Y to be $1, \mathrm{p} = \mathrm{P}(\mathrm{Y} = 1)$. Let X is a vector of variables that explain female labor market participation, then the logistic regression of Y on X estimates parameter values for β with the maximum likelihood would be presented in Equation 9 as

$$Logit\ (p) = \log\left(\frac{p}{1-p}\right) = \beta_0 + X\beta \qquad (9)$$

Exponentiate both sides

$$\frac{p}{1-p}\ Exp(\beta_0 + X\beta) \qquad (10)$$

Take the multiplicative inverse of both sides

$$\frac{1-p}{p} = \frac{1}{Exp(\beta_0 + X\beta)} \qquad (11)$$

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[8] Snow ball sampling technique helps to identify individuals with a similar trait of interest.

Add 1 to both sides

$$\frac{1}{p} = 1 + \frac{1}{Exp(\beta_0 + X\beta)} \tag{12}$$

Equation 12 can be written as

$$\frac{1}{p} = \frac{Exp(\beta_0 + X\beta) + 1}{Exp(\beta_0 + X\beta)} \tag{13}$$

Take the multiplicative inverse of Equation 13 we get

$$p = \frac{Exp(\beta_0 + X\beta)}{Exp(\beta_0 + X\beta) + 1} = \Lambda\,(X'\beta) \tag{14}$$

Where Λ is the logistic cumulative distribution function. Equation 14 is non-linear, therefore, the coefficients of explanatory variables would be estimated through maximum likelihood estimation.

3. RESULTS AND DISCUSSION

This section presents the empirical results and an in-depth analysis. We used different combinations of variables of interest in four different models. All the models have a basic set of independent variables. However, these vary with respect to the variable of interest. Hence, such a scheme is believed to provide the sensitivity analysis and help us establish the authenticity of the empirical results. All models have behaved well, as variables retain their signs and significance which indicates the resilience of the obtained results.

As discussed earlier, the dependent variable is female employment decision captured by female's decision to participate in the labor market. Before discussing the regression results, we would first elaborate on the estimation scheme for each model. Each model contains three distinct strings concerning the female's characteristics, household characteristics and the variables of interest i.e. variables concerning religiosity. The set of variables concerning females includes variables like a females' general education, health, age, marital status and women with children. The models next retain variables concerning household i.e. household size, household income and the employment status of the head of household. While the third strand is concerned with religiosity at the female as well as household level. Keeping the base model constant, we have estimated different models with different combinations of the variables of concern as shown in table 1.

Table 1. Empirical findings (Dependent variable: Women's labor market participation decision).

Independent variables	Model 1	Model 2	Model 3	Model 4
Female education	0.250***	0.234***	0.224***	0.247***
Female health	0.120***	0.122***	0.106***	0.121***
Female age	0.003	0.004	0.003	0.003
Marital status	-0.109	-0.113	-0.149	-0.113
Have children	0.093*	0.0934**	0.102**	0.093*
Household size	-0.008	-0.008	-0.010	-0.009
Household income (ln)	0.113**	0.104**	0.102***	0.092*
Head of household employment status	-0.521**	-0.525**	-0.438*	-0.521**
Female religiosity index	-0.846***	-------	--------	-------
Female religious education	-------	-0.065***	-------	-------
Head of household religiosity index	-------	-------	-1.109***	-------
Religious expenditures	------	--------	--------	0.0004
Log likelihood	-131.12	-127.60	-124.02	-130.68
LR chi2(9)	60.77	67.81	74.97	61.64
Prob>chi2	0.0000	0.0000	0.0000	0.0000
Pseudo R2	0.1881	0.2099	0.2321	0.1908

Note: ***,**, * show significance levels at 1, 5 and 10 % respectively.

The parameter estimates in model 1 present the results of the baseline model but the estimates and their signs remained similar across all four models. Therefore, instead of discussing each of the four models we would discuss the variables and look for implications. As per the results, women's general education holds a positive sign and is

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statistically significant which reveals that women's participation in the labor market increases with an increase in their education level. As years of formal education increase, females' prospects to enter labor market activities increase. These findings are in line with the findings of England et al. (2004); Ejaz (2007) and Nieuwenhuis et al. (2012).

A worker's health is another important determinant that defines the worker's decision to participate in the labor market. Findings reveal that women with good health are more likely to participate in the labor market. Shaheen et al. (2015) came up with the same findings and argued that unhealthy women have less chances to enter the labor market as they do not work efficiently. Moreover, Zhang et al. (2009) found a positive relationship between health and productivity and argue that the probability of females entering the labor market increases with a good state of health.

The age of the female was included in our model as it is an important determinant of the female's decision to enter the job market. In general, it is hypothesized that *"older women mostly have grown up their children so the possibility of their involvement in labor market participation in the later part of life increases"*. There is evidence in the literature indicating the worker's age increases the prospects of her employability like Naqvi and Shahnaz (2002); Hafeez and Ahmad (2002) and Shaheen et al. (2015). However, according to our empirical results, despite having the expected sign the female's age is not statistically significant across all four models. Hence, we can say that a female's age could not turn up as a determinant of a female's decision to join the labor market.

Similarly, another variable namely the marital status of the respondent is statistically insignificant and has a negative sign. The sign is explainable with the fact that at large women's family responsibilities with marriage, limit their participation in the labor market. Jacobsen (1999) came to the same conclusion, however, some studies hold different findings, for instance, Shaheen et al. (2015) argued that marriage has a positive impact on the labor market participation decisions of women. The reason may be that married women's have more responsibilities to fulfill and also want to share the financial burden. Nevertheless, our results do not confirm this being insignificant.

Our empirical settings include another very important factor i.e., "women with children". Our results across different models indicate that "having children" has a statistically significant and positive impact on the dependent variable "women's participation decision in the labor market". The one possible justification is that a woman has to look after her child, therefore, needs more resources. Moreover, in a joint family system, there is essential support available for females who are willing to work. Positive signs are supported by numerous studies (i.e. (Faridi et al., 2009a; Naqvi & Shahnaz, 2002; Shaheen et al., 2015)).

We discuss the variables related to household characteristics. Across all four models, the variable household size has a negligible magnitude and is statistically not different from zero. However, it enters the model with a negative sign. Thus, results indicate that household size has no significant impact on female employment decisions.

Household income poses a positive and significant effect on women's employment decisions as it enters the model significantly and holds a positive sign. The result indicates that as the level of household income increases, it enhances the chances of women's participation in the labor market. Naqvi and Shahnaz (2002) found similar findings and argued that women from well-off urban families consider economic participation to be a norm. However, Hamid (1991); Hafeez and Ahmad (2002) and Ejaz (2007) found contrary results exhibiting that in households with higher incomes, women are less likely to participate in market activities. Another interesting insight from our results is that the head of the household's employment status has a strongly negative impact on the female's decision to work. The results are highly significant at 5 percent. Result indicates that if the head of the household is employed then there are fewer chances for females to participate in the labor market.

Having discussed the base model, now we come to the discussion regarding the variables of concern. The subset of variables of interest contains four important variables to meet the objectives of the study. Firstly, the HHH religiosity index appears in models (1-4) and is statistically significant bearing a negative sign.

Our first measure of religiosity, the female religiosity index has a negative and statistically significant coefficient. The results indicate that females with a more religious orientation are less willing to participate in labor market activities. First, as stated by Hamdani (2004), an individual who believes in the life hereafter and has a relatively high level of religiosity will allocate his time between worldly and afterlife activities to keep balance in all acts. Second, having an economic decision, a religious individual not only considers the utility of life on earth but also expects a stream of utility in the afterlife.[9] Hence, a religious female under a specific belief pattern will consider

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[9] Equation 3 of theoretical framework presents the expected stream of utility in the afterlife.

the worldly utility of any economic decision along with consideration of satisfaction in the afterlife which is perceived as a systematic consequence of current life allocation of resources. Taking into account her current utility and the expected stream of utility in afterlife, a religious female should value less minatory gain in the worldly life and allocate reasonable time to personal obligations and religious activities thereby maximizing the expected stream of utility in afterlife. Third, more religious females (especially Muslim) want to keep themselves in their homes and are less willing to participate in outside labor market activities.

Similarly, in model 2 (column 3), our second proxy of religiosity, females' religious education is negative and statistically significant. The result shows that women with high religious education are less likely to be in the labor market. The two possible reasons that justify the result are: First, the female with religious education allocates her time among all activities with justice, hence along with labor market activities she also commits to allocate her time to personal obligations and religious activities. Second, perceptions regarding the outside working environment and the alienation of practicing females can also be a reason for low engagement outside the home.

In model 3 (column 4), the variable of interest is captured with the head of the household religiosity index. This proxy is based on hypotheses that females with similar religious orientation would have different time allocations toward labor market activities if the heads of their households have different levels of religiosity. Like the former two proxies of religiosity, the household head religiosity index also enters the model with a negative sign that is statistically significant. The result shows that more religious heads of household are less willing to allow their females to participate in the labor market. This implies that religious heads of households prefer their females not to be involved in household activities or in outside labor market activities. The restrictive attribute of the household head should be shaped by prevailing social norms and traditions. However, Islam never discourages women from making positive contributions to society and this has been established since the early days of Islam. History tells us that women actively participated in trade (Hazrat Khadija R.A), learning and education (Hazrat Ayesha R.A) and even in war time (where women worked as first aid providers). Importantly, this all happened during the Prophet Muhammad's (PBUH) time and immediately afterwards. Hence, it is clear that it is not Islam that restricts females from participating in economic affairs, instead, it is the work environment, workplace ethics and our society's understanding of Islam that hinder their participation (Nadavi, 1994).

In the theoretical underpinning presented in section 2.1, we hypothesized that religiosity shapes human behavior and affects their economic decisions. Like other economic decisions, religiosity would also shape the decision about time allocation. To be more specific, we hypothesized that female with a more religious orientation would spend more on religious functions, obligatory and non-obligatory activities and therefore would be more willing to participate in the labor market. In this context, in model 4 (column 5), we capture female religiosity with her religious expenditure. However, this proxy of religiosity cannot signify its role in female labor market participation.

To sum up, three out of four religiosity proxies have negative and statistically significant coefficients which indicate that with a higher level of religiosity, females are less likely to participate in the labor market. The findings substantiate the fact that proper awareness is lacking which can highlight the role of women in economic development instead of acting as an impediment. Results are thus indicative of patriarchy culture in our society.

4. CONCLUSION AND RECOMMENDATIONS

Pakistan has a population of 210 million of which half are female. It is important to analyze the factors that affect a female's decision to participate in the labor market. This study analyzed how religiosity along with other important factors, affects female labor market participation. The findings of the study reveal that females with higher religious orientations are less willing to participate in the labor market. On average, more religious women find less time to allocate to market activities and give proportionately more time to other activities including voluntary work and religious duties, as compared to less religious women. If both the female and the household are more religious, women's chances to participate in labor market activities are low and they prefer to allocate her more time to religious and home activities.

This study also found that women's religious education is negatively associated with their labor market participation. As religious education increases, women are less willing to participate in market activities and prefer to spend more time on their religious and household obligations. However, females' formal education and household income indicate their role in making decisions about labor market participation. Importantly, higher income empowers women and increases their chances of participating in the labor market. Similarly, if the head of

the household is employed, this has a negative impact on female labor market participation. Married women are also less willing to participate in labor market activities.

Despite certain limitations of the study including a limited sample size, we believe our findings contribute significantly to recommendations about female labor market participation and have interesting policy implications. Our findings reveal a positive relationship between females' formal education level and their labor market participation. This entails a government policy to facilitate women in enhancing their education level. Moreover, the work environment and workplace ethics need to be improved so that the workers and their families find it convenient and satisfying to participate in economic activities. Lastly, mainstreaming the religious educational institutes and their curriculum will resolve the misconceptions.

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