

Labor Force Participation of Married Women in Punjab (Pakistan)

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Abstract. This paper highlights the factors that influence the decision of married women (in the age group of 16-60 years) to participate in labor force activities. Employing the probit model on 3911 observations it is found that women's age, women as head of the household, women's education, household poverty, family size, number of girls (5-15 years), number of daughters over 15 years of age, husband's unemployment and low income, and rural locality have a significant positive effect on labor force participation of married women. On the other hand, ownership of assets by the household, household per capita income, being a nuclear family, number of infants, number of sons over 15 years of age, and husband's education have shown a negative effect. Poverty in an overall perspective is found to be the major determinant of the labor force participation of married women.

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1. Introduction

Labor force participation of women in Pakistan is very low as they suffer from a paucity of opportunities. In particular, women's access to the labor market is determined by rigid gender-role ideologies, social and cultural

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restrictions on women's mobility and integration in the work place, segmented labor markets, lack of skills, and employers' gender biases that attach a lower value to female labor due to their family responsibilities. The female labor force participation rate in Pakistan is exceptionally low at just 14.4 %, compared to 70.3 % for males,¹ while the unemployment rate is 16.5 % for females and 6.7 % for males (FBS 2003:15, 30). The share of women's earnings in household earned income is 26 % of male earnings, while their economic activity rate as a percentage of that of males is 40 % (MHDC, 2000). The incidence of poverty among women is higher than with men and is characterized by unemployment, discrimination in the labor market, and limited access to economic opportunities, among others. Women are largely neglected in the social, economic, political and legal spheres. They have gained disproportionately from the development process. Pakistan needs to go a long way to achieve a balanced and sustainable development scenario (Mahmood and Nayab, 1998). For women, the access to money-earning activities, amongst others, is an important means to improve their position (Polachek and Robst, 1997). Furthermore, employment is the main bridge between economic growth and opportunities for human development (UNDP, 1996). One of the factors that boosted growth rates in the Asian tigers was the rapidly rising female labor force participation rate (Young, 1995). The access of mothers to income-generating opportunities impacts positively on the well-being of children, particularly daughters, indicating that parents' relative bargaining positions affect children's gender equity (Thomas, 1990; Haddad and Haddinot, 1995). Female mortality is inversely related to female labor force participation (Rosenzweig and Schultz, 1982; Kishore, 1993). A higher female labor force participation lessens gender bias in child survival (Murthi *et. al.* 1995). This draws attention to the analysis of women's work which is generally more variable than men's and is also disadvantaged.

1.1. Implications of Women Labor Force Participation

In Pakistan, decision making within the household is predominantly regarded as a male prerogative. That is why women labor force participation is ranked lowest in South Asia. Conceptually the women labor force participation in developing countries has a number of implications. Firstly, it results in an increased strengthening of women's position in the family and society due to their financial capacity, which in turn contributes to economic

¹ The female labor force participation in Bangladesh is 42.4 %; India 32.4 %; Myanmar 43.4 %; Nepal 42.5 %; and Sri Lanka 36.8 %.

development. Secondly, on the negative side, the increase in women labor force participation corresponds to a deterioration in working conditions, emergence of low skilled jobs and inadequate opportunities for women to achieve vertical mobility.

1.2. Aspirations of Married Women to Work

Like many developing countries, in Pakistan housekeeping is considered the main activity of married women. Sathar (1993) explains that there exists a segregation of time allocation by sex, i.e. men work for wages generally outside their home while women and daughters have overlapping household chores. Along with household tasks, a small ratio of women participates in economic activity, though the majority of them are involved in the informal sector. Educated women realize the returns to their education and join the labor force. Professionally educated women who are in fact a very small ratio, share economic activity in their respective professions. The marital status of females correlates with aspirations of work. Some women work before marriage, as they have less responsibilities of household chores or child-care of younger brothers and sisters. Sometimes girls feel free after their education and before their marriage they temporarily participate in economic activity. Some women participate in the labor force to generate savings for their dowry that is regarded necessary for marriage. Before marriage, girls feel happy to work since they develop many friendships and communicate freely among themselves (see also Jasmin 2000 for Bangladesh). Furthermore, they are happy because work means they do not have to get married at a young age and they may have the choice of a good spouse. In recent times, moving out of rural areas and small towns/cities to big cities is considered a right step towards economic and social uplift. Some girls join the labor force in big cities to fulfill their social and economic aspirations. But another aspect is that, as the aspirations of these girls are met, they neither complain about their working conditions nor are aware of violations against their rights as workers. Young women fresh out of school or college are happy simply being paid, regardless of the amount, and overlook long working hours. They became more independent and less reliant on their parents with their earnings. However, after marriage, married women with and without children spend on average more time out of the labor force than unmarried, childless women (Duncan *et. al.* 1993). Even a significant number of women give up their economic activity after marriage and they do not participate in labor force activity as new entrants. Some general reasons are that women have to migrate from one place to another after marriage; more time is required for child-care and home-management, in a patrilineal paradigm married women have to depend on

their husband's approval even to re-enter the labor force and this ultimately depends on the individual and socio-economic characteristics of their husband; and all the advantages that married women had before marriage are foregone. The reasons on the demand side are that the women in the age group before marriage are typically in good physical condition and therefore have higher productivity. In terms of compensation, an unmarried woman incurs less cost to the employer than a married woman since the employer does not have to give maternity benefits or time for feeding infants (see Anker and Neim 1985 for details). On the supply side, married women with children earn less than women without children. However, married women may continue their economic activity or enter the labor force as new entrants if they get good wages, (Ofer and Vinokur, 1983), social security benefits after retirement (McGratten and Rogerson, 2004), the husband has a good attitude towards their work (Huth, 1978), professional education, and good returns to their education. Labor force experience also contributes to the continuation of work since the difference in the hourly wage rate within the same age group and with the same educational attainment may reflect the difference in labor force experience (Levine and Mook, 1884). Some married women work to lower the economic vulnerability of their households, to provide quality education to their children, or to support a large family. Similarly, others work due to single motherhood (divorcee, separated or widow) or even as head of the household. The risk of divorce can also play a role in the labor force participation of married women, though Sen (2000) calculated this factor has a smaller role in the labor supply decision of married women. The socio-economic situation of the household, i.e. if the household is a household-enterprise, is engaged in agricultural farming, or has contract labor or piece rate work and needs household labor, the married women of the household participate in work. The labor force participation of married women increases by the provision of child-rearing practices by mothers of working women (Huth, 2004). The work probability may increase by the "Edison Effect", i.e. married women should be thankful to Thoman Edison for household technological innovation – labor-saving appliances which freed them to choose gainful employment (McGrattan and Rogerson, 2004).

At the macro level, a number of supply and demand side factors affect the decision of the economic activity of married women. Educational, technical and vocational opportunities provided by the public sector and availed of by women, employment opportunities, wage rate, availability of credit, state of technology in the country, legislation for female workers and its implementation, and cultural attitudes towards working women are major determinants. Our study is concerned with supply side determinants at the

household level. At the household level the determinants of the labor force participation of women largely depend upon the socio-economic background of working women. On the basis of this they may be classified into three categories. On the top of the socio-economic strata are the women who are professionals. They are comprised of highly educated women. They have at least 14 years of education and are employed in high skilled and high status jobs, such as doctors, superior civil services, army officers, bankers, lecturers and business executives. The majority of such women enter the labor force to pursue a career or for their personal fulfillment, where financial necessity is not the main reason for taking up paid employment (Sayeed *et. al.* 2002). In most of the cases the husbands of these women are high professionals. The Edison effect promotes women working in this category. Next on the scale is the group of women who are in the formal professional sector. This group is classified as middle or lower level professionals and includes nurses, paramedics, telephone and computer operators and clerical workers. Most of them had completed their matriculation or intermediate education and have some technical certificates. Their husbands usually have the same range of education and similar a profession. These two categories fall in the category of formal employment. Formal and informal employment appear to differ significantly in terms of skill requirements, compatibility with child-care and costs of entry (Glick and Sahn, 2004). The women workers in the formal sector tend to belong to smaller households having fewer children than those who work in the informal sector (Sayeed *et. al.* 2002). At the bottom of the scale are women from poor households who are normally uneducated and work in low-income occupations in the informal sector. This group of women includes factory workers, informal sector workers such as domestic servants, casual workers, vendors, and home-based women workers. The husbands of these women are mostly skilled and unskilled production workers, laborers and self-employed laborers. The deterioration of economic circumstances, such as the death of the husband or the bread-earner, divorce, or separation are the major causes for their working.

1.3. The Focus Group

For women, the combination of age, education and marital status determines their stage of the life cycle, which in turn affects their labor force participation and social mobility. The different and the distinct phases of women's lives are: young and single women; married, divorced or widowed with young children; women with adult children (married, divorced or widowed); and older women without a husband or children. Women in the first and the two last categories are more likely to join the workforce since

their domestic conditions allow them to work outside the home without taking too much time away from their housework. Nevertheless, a divorced or widowed woman with small children will have to work to support the family. This can only be done if the woman receives some help from other members of the family to take care of the children. We will focus on the second category, i.e. married women. A thorough and comprehensive understanding of married women workers is limited by the paucity and limitations of research in this area. We have attempted to rectify the situation by undertaking a study with primary data including a broader range of variables. The survey was conducted in 2004-2005 in two districts of Punjab (Pakistan). The purpose of the survey was to identify the determinants of labor force participation of married women in order to recommend policy changes and to introduce broader institutional changes.

2. Objectives

The principal features of the study are the following questions that we seek to answer:

- i) To what extent is married women's labor force participation sensitive to their age, education, and headship of the household?
- ii) To what extent do ownership of assets by the household, household per capita income and household poverty impact the work decision of married women?
- iii) What is the likelihood of the labor force participation of married women being affected by the household size and its composition (number of infants, school-age children and prime-age siblings)?
- iv) In what way do the characteristics of the head of household such as age, education, employment and income affect the labor force participation of married women?
- v) Are urban married women or rural married women more likely to work?

3. Data Collection and Estimation Model

Primary data exclusively collected for the study² by the cluster sample technique has been used. A survey of four thousand households having at least one woman who has at some point been married in the working age group of 16-60 years made the information valid. For the decision of these women to participate in the labor force, we estimated a regression model in which the decision of married women labor force participation (MLFP) was a function of several explanatory variables. The dependent variable could take on only two binary values: 1 if the married woman participated in the labor force and 0 if she did not. The labor force participation of married women was defined as the activities done for at least one hour during the reference periods³ (one week) as paid-employment, self-employment, or in a family enterprise.⁴ Some studies (see for instance, Pangestu and Hendyitio, 1997) have defined working women as women who are working for other people or legal entities and are compensated in financial terms or payment in kind. They have ignored the self-employed and women involved in family enterprises. In Pakistan, specifically in the informal sector and rural areas, a number of women are involved in these two kinds of employment. We have therefore considered these women as labor force participating women. Sultana *et. al.* (1994) have analyzed the determinants of female time allocation between market and housework of females in rural Pakistan applying OLS and the Tobit model on the International Food Program

² The official data available on women's labor force participation has serious problems and underestimations, inconsistencies, and biases. Some are based on projections rather than actual figures, others have known biases, and many are extrapolated from partial information (Behrman and Rosenzweig, 1994; Srinivasan, 1994; Chanie, 1994). Even the reliability and compatibility of the gender-disaggregated tables produced by UNDP or the World Bank are also questioned (See Srinivasan 1994).

³ The use of the wage rate and working hours as continuous variables is conventional in the literature concerning labor force participation to proxy for the employment status of adults (see for instance Azid *et. al.* (2001) and Hartog and Theewes (1986) who have used working hours). As the wage rate or working hours in the rural areas and informal sector fluctuate considerably and it is difficult to obtain the information in the survey due to preconceptions of the individual, we have taken labor force participation of women as binary variables.

⁴ If all the activities of married women were taken into account in the model (simultaneous or sequential probit and logit) for the allocation of time, the activities would be paid-employment, unpaid-employment (household enterprises), self-employment, home-care activity, and/or a combination of some or all of these. But, we are concerned only with the economic activities of married women.

Research Institute (IFPRI) survey data. They analyzed the effect of women's age, education, household per-capita income, number of dependents in the household, and predicted male and female wages on the time allocation of women. They found that home-time allocation for participating women is significantly and negatively dependent upon her age, education and the predicted wages of the males in the household. Another significant variable is the distance of the main market from the home because this increases the transportation cost and travelling difficulties as well as the cost of market goods for which substitutes can be produced at home. An increase in the distance means a decrease in time to work in the market. Naqvi and Shahnaz (2002) have estimated women's participation in economic activities by using the multinomial logit model and probit model on data by the Pakistan Integrated Household Survey 1998-99. The results indicated that the women who are older, better educated, head the household, or come from smaller, better-off urban families are more empowered to take employment decisions on their own. Glick and Sahn (2005) have used two distinct methodologies applicable to a short period panel. A multi-period multinomial logit model with random effects provides evidence of unobserved individual heterogeneity as a factor strongly affecting labor market sector choices over time. Results from simpler single period models that condition on prior sector choice are consistent with either heterogeneity or state dependence. Both approaches perform equally well in predicting the individual labor market behavior conditional on past choices. Hartog and Theeuwes' (1986) econometric analysis is based on Heckman's (1974) participation-cum-hour model to estimate the integrated labor force participation and hours of work. By using the maximum likelihood model, they integrated the distribution of the parts of hours. They have compared the results with estimates of the probit model to identify the possible biases. Duncan *et. al.* (1993) have used the probit model to explore the probability of a women working.

We have estimated the non-linear maximum likelihood of labor force participation of married women for the normal probability (probit model). The function is

$$\text{MLFP} = f(X_1, \dots, X_2) \quad (1)$$

X_1, \dots, X_2 are the exogenous socio-economic variables influencing the female's decision of labor force participation. The definitions of dependent and explanatory variables are presented in Table 1.

Table 1: Definitions of Dependent and Explanatory Variables Used in the Model

VARIABLES	DEFINITIONS
Dependent Variable	
MLFP (Married woman's labor force participation)	• 1 If she works, 0 otherwise
Independent Variables	
WAGE (Married woman's age)	• Her age in completed years
WAGESQ (Married woman's age squared)	• Her age squared
WEDU (Married woman's education)	• Her completed years of education
WEDUSQ (Married woman's education squared)	• Her completed years of education squared
WLIT (Married woman's literacy status) ⁵	• 1 If she is literate, 0 otherwise
MHEAD (Married woman as head of household)	• 1 If she is head of household, 0 otherwise
ASST (Household's ownership of assets)	• 1 If the household owns assets, 0 otherwise
HHPY (Households per capita income)	• Household's per capita income (in 00 Rupees) per month
POVTY ⁶ (Household's poverty status)	• 1 If household's per capita income per month is Rs.848.79 or below, 0 otherwise
HHSIZ (Household/family size)	• Number of household/family members
HHSSIZ (Household/family's small family)	• 1 If household members are less or equal to 5, 0 otherwise
CHILD04	• Number of children up to 4 years in the household
BOY515	• Number of school-age boys (5-15 years) in the household
GIRL515	• Number of school-age girls (5-15 years) in the household
PRIMM16	• Number of prime-age sons (16 years or above) in the household

⁵ The official definition of literacy in Pakistan is "one who can read a newspaper and write a simple letter". The literacy so defined cannot be accepted as "functional literacy" that is what an individual needs to function in a society which is becoming increasingly complex. We have defined adult literacy (for the woman and her husband) as the minimum of five years of formal education.

⁶ The official poverty line in Pakistan is taken as Rs.848.79 per capita per month (GOP, 2004).

PRIMF16	• Number of prime-age daughters (16 years or above) in the household
HEDU (Husband's education)	• Husband's completed years of education
HLIT (Husband's literacy status)	• 1 If the husband is literate, 0 otherwise
HEMP (Husband's employment)	• 1 If husband is employed, 0 otherwise
HY (Husband's income)	• Husband's income per month (in 000 Rupees)
LOC (Locality of the household)	• 1 If the household is urban, 0 otherwise

4. Results and Discussion

The summary statistics and probit results are given in Table-2. It is found that 75 % of the variation in labor force participation is accounted for by the explanatory variables. The major part of the results is consistent with the theoretical implications of the labor force participation of women.

The following features of the results are worth noting:

4.1 Woman's Age

Conceptually the life cycle of an individual affects his/her decision of labor force participation (Salway et. al. 2003). Two hypotheses may be postulated about the effect of women's age on the decision of labor force participation. Firstly, the increase in age may raise labor force participation due to (i) larger family size and ultimately income dilution effect (ii) work experience and high wages in a later age, (iii) awareness positively correlates with age, (iv) presence of offspring in the household to look after household chores freeing mothers for labor, and (v) the fact that older women have more and relaxed social contracts as compared to younger women. Second, the hypothesis is that elder women have comparatively older off-spring as compared to younger mothers and in poor households the children enhance the financial status of the household by participating in the economic activities. So mothers in the latter age are less likely to work. Hartog and Theewes (1986) have estimated integrated labor force participation and hours of work of labor supply for married women. Younger women have been found to behave differently from older ones. Wage and income elasticities have also been found higher for older than for younger women.

Table 2: Summary Statistics and Probit Results for Married Women' Labor force Participation

Variables	Mean	Standard Deviation	Probability Derivative	Parametric Estimates	T-Statistics
Constant	-	-	-1.8696		-3.0329
WAGE	41.6145	7.1630	0.0423	0.0949	2.2742**
WAGESQ	1339.66	553.33	-0.0076	-0.0024	-1.2898*
WEDU	3.1488	4.9560	0.0792	0.9578	1.6672**
WEDUSQ	10.0113	7.9861	0.0096	0.0134	1.9351*
WLIT	0.7488	0.4338	0.1003	1.2602	1.5605*
WHEAD	6.1564	0.1943	0.0372	0.1304	1.9571**
ASST	0.8595	0.3475	-0.1907	-0.3642	-1.3546**
HPCY	601.73	1545.54	-0.0896	-0.5178	-1.4986*
HPOVTY	0.4297	0.4830	0.1084	0.1642	1.9283*
HHSIZ	7.3343	2.1755	0.0413	0.7089	2.2155*
HHSSIZ	0.2198	0.4179	-0.0361	-0.9224	-2.4856*
CHILD04	0.5229	0.7831	-0.0251	-1.1134	-1.6881**
BOY515	1.7931	1.2069	-0.3776	-0.3432	-1.1259
GIRL515	1.6084	1.2218	0.0416	0.7351	2.2419**
PRIMM16	0.6045	1.0076	-0.1029	-0.5468	-2.0861**
PRIMF16	0.4893	0.7348	0.2224	1.20873	1.4754*
HEDU	5.9687	5.3117	-0.0148	-0.7210	-2.1456**
HLIT	0.5213	0.4997	-0.0975	-0.6732	-1.3719*
HEMP	0.8290	0.2569	-0.1324	-0.5642	2.8674**
HY	5336.12	6693.47	-0.0217	-0.4564	1.8124*
LOC	0.6732	0.5921	-0.0621	-0.8725	1.9736**
Log of Likelihood Function -3274.4871 Number of Observation 3911 R-Squared 0.7553 % Correct Prediction 0.8296					

** Indicates significant at 5 % level and * indicates significant at 10 % level.

In the present study, for the married women in the age bracket of 16-60 years the probability derivative of mother's age is found to be positive and the age square is found to be negative. This implies that the probability of labor force participation of married women increases by increasing their age (see also, Naqvi and Shahnaz, 2002 for Pakistan; Loksniin *et. al.* 2000 for Kenya)

at a decreasing rate (See also Gondal, 2003 for Pakistan). The labor force participation is found to reach a maximum at 39.49 years.⁷ The average age estimated in our study is 41.61 years. The result is corroborated by the national statistics where labor force participation of women is highest in the age group of 40-45 years (FBS, 2003:16). It is further estimated that one-year increase in age may increase labor force participation by 4.2 %. The possible explanation may be that for the younger women social constraints are strict, which do not allow them to go outside the home and participate in labor force activities. Another aspect may be that younger married women have a comparatively smaller family size due to a lesser number of offspring so they are less compelled to participate in the labor force. Similarly, intensive child-bearing age may hinder labor force participation. It is further estimated that after the age of 39.49 years the labor force participation of mothers decrease. The possible reason may be that after that age women have younger age children who may support their households financially as the labor force participation of children is an evident phenomenon in Pakistan.

4.2 Women's Education

Individual characteristics of women influence the level of participation in the work force and education is perceived as the major characteristic for the decision to participate in the labor force. The level of a woman's education may work in two ways to affect the allocation of her time between the market and the home. For example, if education increases her productivity at home-work then she would prefer to stay at home but if the opportunity cost of staying at home is greater for an educated woman, then she would prefer to work in the market (Sultana *et. al.* 1994). But the higher level of education of married women indicates that they do not belong to poor households. They come from families that at least hope that their women will get either better jobs or otherwise no job. Women with a lower level of education or no education have work aspirations simply to get paid merely to survive and be independent. They can become passive in facing the classic problem of labor, such as low pay, bad working conditions and not receiving their rights such as maternity leave benefits and so on. To capture the effect of married women's education on their labor force participation, we have included two types of explanatory variables regarding married women's education,⁸ i.e.

⁷ The parameter estimate of WAGE (woman's age) is 0.0949 and WAGESQ (women's age squared) is -0.0024.

⁸ The educational level of females stands proxy for wages or income, so we have not included the wage rate of married women in our analysis as an explanatory variable.

continuous variable representing the number of completed years of education of women, and a binary variable representing whether the mother is literate or illiterate (the same type of variables have been used to capture the effect of husband's education on the labor force participation of women later in this paper).⁹ We have estimated that one additional year of education of women on average may increase their labor force participation by 7.9 % at an increasing rate. The education of women as a binary variable has shown that literate women are 10 % more likely to work as compared to illiterate women (see also Naqvi and Shahnaz for Pakistan; Ofer and Vinokur, 1983 for the Soviet Union; Polachek and Robst, 1997). The possible explanation may be that the level of education among women improves their skills through training. It creates an opportunity for them to adopt changing technologies. The better-trained workers lead to increased productivity and wages. From the policy perspective, the provision of education generally and adult education specifically may play an important role to boost the labor force participation of married women and their productivity.

4.3 Women as the Head of Household

One group of households identified as vulnerable is the female-headed household, a category considered to be increasing in number and needing policy attention (Buvinic *et. al.* 1987; Buvinic and Gupta, 1993). More recently, however, the use of the female-headed household as a marker for poverty and vulnerability has come under criticism (Rosenhouse, 1989; Louat *et. al.* 1993; Varley, 1996).¹⁰ The widow-headed household in this group are particularly vulnerable households. Srinivasan and Dreze (1995) found that single widows as well as widow-headed households with

Though McGrattan and Rogerson (2004) have concluded that the number of average weekly hours of market work per person have shifted dramatically from single to married persons in the household due to relative wages of females to males (see also Ofer and Vnokur 1983).

⁹ To make a comparison of literate women (having at least five years of formal education) with illiterate women (having no education or simply less than 5 years of education), we have used a binary variable of literacy status of women.

¹⁰ Critics have pointed out the diversity of female-headed households, in particular the difference in economic conditions between single-person elderly (usually widowed) female-headed households and households with children headed by females in the absence (temporary or permanent) of adult males (Varley, 1996). The latter category often fails to distinguish sufficiently between whether or not economic support is provided by the absent males (Rosenhouse 1989). Some have argued that the differential poverty of female-headed households may be small and have little welfare effect given their different spending patterns (Louat *et. al.* 1993).

unmarried children appear to have among the highest poverty incidence of all household types and are significantly poorer than their counterpart male-headed households. But it is also shown that extended families that include widows are not generally poorer than those that do not (see also Dreze and Sen, 1995). Marson and Lampietti (1998) narrated that female-headship is one of the most useful indicators of vulnerability in the absence of anything better (see also, Rosenhouse, 1989). Ray (2000) narrated that female-headed households are more vulnerable to poverty. In South Africa, female-headed households are unconditionally poorer than others. In Pakistan, however, in the presence of economies of household size and adult/child consumption relativities the female-headed households are poorer than others, but not in the per capita case (see also Buvinic and Gupta, 1997 for developing countries; Jesmin, 2000 for Bangladesh; Quisumbing *et. al.* 2001 for Bangladesh). They are identified as indicators of family disintegration. Life is difficult for female-heads, not least because of prejudice, but social stigma. They have far more difficulty in maintaining their families because they have less access to the market economy. When they do earn, their wages are far lower. Female-headed households are generally far more common in Latin America, Africa and the Caribbean than in Asia and the Pacific--- where widows, divorcees and women on their own are likely to be absorbed in extended family households. In Pakistan, second marriage for females is discouraged due to the social norms, though from the religious point of view it is allowed. But the relatives usually care for widows and abandoned women, though the economic circumstances of such women are not so good at large. Our objective to include the women as the head of household as an explanatory variable is to see if the women's labor force participation in such households is significantly different from their counterparts – where heads of household are men. We have found that mothers as head of households are 3.7 % more likely to participate in the labor force (see also Naqvi and Shahnaz, 2002; Lokshin *et. al.* 2000 for Kenya). There may be a number of explanations for the phenomenon, for example, women as the head of a household have a good division of labor in the household: she goes out and is involved in earning activities to financially support the household and asks other women, usually older ones, to perform household chores. Poverty and the burden of children compel them to participate in the labor force.

4.4 Household Assets

This is an important indicator of the socio-economic standing of the labor force participation of mothers. The ownership of assets implies a relative degree of security to households and determines household needs.

Theoretically, the ownership of assets may impact the labor force participation of women in two ways. In one way, the assets make the household richer and financially stable and women are less likely to work. In another way, if the household owns assets, it may be easier for women, specifically in the informal sector to work at household-enterprises. In the low-income households, particularly, the presence of assets increases the demand for labor, which is fulfilled by the partial contribution of women. In our sample, more than half the working women come from households without assets. Sultana *et. al.* (1994 for rural Pakistan) have used asset value as a proxy for the non-wage income of the household and found that a change in non-wage income has a negative effect on a woman's time allocation in the market as well as at home, since it increases the consumption of leisure. We have found that if the household has assets,¹¹ the women are 19 % less likely to work. The possible explanation may be that ownership of assets represents non-wage income and wealth of the households respectively, so women from comparatively richer households are less likely to work because of constant income from their assets.

4.5 Household per Capita Income

An understanding of the inspiration and motivation of women is important in analyzing her decision to be economically productive. Aspiration is determined by socio-cultural and economic factors such as cultural influences, education, religion, norms adopted by the community (the value, position and role of women accepted by the community), the unemployment level in the region and the general standard of living. Most of all, work makes it possible for women to have aspirations for self-improvement and the financial improvement of the household. In this way, household income determines the motivations of women to work (see also Salway, 2003 for Bangladesh). Furthermore, household income is the central indicator of the socio-economic standing of the household. Alderman and Chistie (1989) found that an increase in household income reduces work by women in the market and leaves work at home unchanged. To investigate the perception that a lower household income forces women to work in Pakistani society, we have used per-capita household income per month (in hundred rupees) as an explanatory variable in the model. The mean per-capita household income in the sample comes to Rs.601 per month.¹² The poverty line for

¹¹ We have included the ownership of a house, shop, land; business assets like machinery, vehicle, agricultural equipment, etc. in the model.

¹² Some studies used the adult characteristics, such as the educational level of the head of the household, as a proxy for household income, due to the problem of the

Pakistan is estimated at Rs.848.79 per capita, per month (GOP, 2004). By this benchmark, on average, the households in which married women work are living below the poverty line. Econometric estimates have shown an inverse relationship between household per capita income and the labor force participation of married women (see also Azid *et. al.* 2001 for Pakistan; Ofer and Vinokur, 1983; Polachek and Robst, 1997). An increase in household per capita income of one hundred Rupees would decrease the labor force participation of married women by 8.9 %. This implies that married women belonging to rich families are less likely to be involved in work. In other words, the majority of women choose to work to support their households financially (See also Hafeez and Ahmed, 2002 for Pakistan; Kozal and Alderman, 1990; Hamid, 1991; Kazi and Raza, 1992). Lodhi and Haroon (1996 for Pakistan) demonstrated that an improvement in the economic status of households leads to an increased demand for household work by women and decreases the probability for paid work. Our results contradict the findings of Naqvi and Shahnaz (2002) who concluded that women from better-off urban families are more likely to participate in the labor force.

4.6 Household Poverty Status

Conceptually, it is assumed that the distribution of women's activities between the labor market, household enterprises, and non-market work (domestic processing and maintenance) is affected by household poverty. We have included the variable of household poverty status (and a binary variable, whether the household is living below the national poverty line or not) to explain whether households living below the poverty line are more likely to contribute to the married women's labor force than households living above the poverty line. Sayeed *et. al.* (2002) have estimated that in urban Pakistan, 38 % of households to which women workers belong are living below the poverty line. Our analysis has shown that married women from households living below the poverty line are 10 % more likely to participate in economic activity. It supports the paradigm that poverty compels married women to work.

endogeneity of explanatory variables. To overcome the problem we have used the sensitivity test, i.e. by including and excluding the HHPY (household per capita income) in the model, the econometric estimates remained unchanged. So we have included the household per capita income as an explanatory variable in the model and the results were found to be significant.

4.7 Household Size

Conceptually, two alternative hypotheses may be postulated about the impact of household size on the mother's work. One is that in larger households, there is a surplus of labor supply within the households and the likelihood of labor force participation of women becomes low. The other equally compelling argument explaining the mechanics of larger households is that they have more mouths to feed, so women have to be economically active. In larger households, a family member may support the married women in housekeeping and child-care (though the basic responsibility of housekeeping and child-care is of mothers) and make her free to be employed in economic activities. Such type of support is usually provided by elder daughters and mothers-in-law.

McGrattan and Rogerson (2004) have concluded that a change in the family system is one of the factors in the increase in the average working hours of married women in the labor market and the shift from single to married person's labor force participation. Alderman and Chistie (1989) have found that an increase in the number of adult females in the household reduces the work burden at home and an additional male or child increases the work load. So the family system is also important for the probability of women's economic activity. Household size and the family system are inter-related concepts. The joint family system and the nuclear family system are prevalent in Pakistan. In a joint family system a woman, apart from her husband and children, lives with her in-laws comprising her husbands' parents, grandparents, brothers, sisters and sometimes some other family members. In a nuclear family she simply lives with her husband. For working mothers, the nuclear family system has disadvantages in child-care, home-management, care of the husband. On the other hand, in a combined family system the disadvantages are the zero-saving by working mothers due to the extra burden of in-laws and sometimes women may be dictated to by the in-laws (Aamir, 2004). To disentangle the effect of household size and nuclear family on married women's labor force participation, we have included two types of explanatory variables in the model. They are (i) continuous variable, i.e. number of household members, and (ii) binary variable, i.e. whether the household is small (having maximum 5 members – household is nuclear) or large. It is found that the higher the size of the household, the higher the probability that the mother works. More precisely, one additional member to the household increases the probability of married women going out to work by 6.5 %, that is the income dilution effect due to a larger family size compels women to participate in the labor force. The other explanation may be that, adult household members other than the

mothers, especially non-working members, may participate in household chores and substitute for mothers as child-care providers when the mother is working. The result contradicts the findings of Naqvi and Shahnaz (2002 for Pakistan) who concluded that women from smaller households are more likely to go out for work (see also, Lokshin *et. al.* 2000 for Kenya). This explains that maternal labor force participation depends on other household members. Our study further indicated that married women from smaller households (nuclear families) are less likely to work. It supports the view that economically active mothers tend to belong to larger households. The explanation for the lower participation of married women belonging to nuclear families may be that the pressure of domestic chores is high on women in nuclear families.

4.8 Number of Children in the Household

A woman's decision about child-bearing and market work has always remained interrelated. With the beginning of the Second Industrial Revolution child labor was replaced by labor of married women, even by those who were reported as housewives in the Municipal Census. A smaller number of children and their mandatory schooling, along with an improvement in women's position within the factory with respect to men, explain this substitution (Camps-Cura, 1998). There are many other estimates of the effect of fertility on female labor supply. For developed economies, there remained clear evidence of an inverse relationship between fertility and female labor force participation. However, in the last decade, the relationship across countries has been positive, for example, countries such as Germany, Italy and Spain have the lowest fertility rates along with the lowest female labor force participation rates. The presence of high-level child-care centers outside the home may explain the likelihood of a positive relationship between fertility and female labor supply (See for details Apps and Rees, 2002). Iacovou (2001) opined that children may have no effect on the labor force supply of mothers, but if they have, the effect may be positive. Cuncan *et. al.* (1993) indicated that the presence of children in the household significantly affects the probability of labor force participation of married women. For instance, Gangadharn *et. al.* (1996) have measured the impact of an unanticipated child on the labor supply of married women and found it to be positive. In a society like Pakistan, where the worth of a woman is attached to the number of children (especially boys) she bears, the number of children in the household exerts an impact on the mother's labor force participation. The number of children exerts pressure on the labor supply of the mother in another way, that is, the households with a large number of children are more likely to be living in poverty. In Pakistan poor

households have 75 % more children in the household as compared to non-poor households (ADB, 2002:3). In our study, we have included the number of infants, and number of school-age children (male and female separately) to disentangle the effects of these children on the labor force participation of mothers. The primary responsibility of the mothers is home-care and child-care while the head of the household (usually the husband) is mainly responsible for financial matters specifically within the context of Pakistan. The mother's decision for labor force participation may be determined to some degree by comparing her productivity at home and in the labor market. Infants require constant care, and a mother's productivity at home in this case is higher than the potential returns from outside work. Lokshin *et. al.* (2000) concluded that economic incentives in the form of child-care centers by the public sector have a powerful effect on the work behavior of women. Unlike developed economies, there is less opportunity for day-care centers in developing countries. In Pakistan specifically, where women's fertility is higher and women have a larger number of children, the concept of the day-care centre does not exist. So the number of infants in the household is speculated to influence the mother's labor force participation negatively. We have found that the presence of infants in the household decreases maternal labor force participation. So, in addition to increasing the number of mothers who work, the government subsidies of low-cost child-care centers and early childhood development programs may increase the future productivity of infants. The increase in labor participation would increase the incomes of poor households and extricate some families out of poverty.

The presence of infants and school-age children in the household may affect the mother's labor supply differently as both require different tasks of child-caring. The infants need full-time care and the presence of mothers in the absence of other household members caring for them, while school-age children need comparatively less time with their mothers. An additional requirement of school age children may be the help of their mothers in their school homework. But school-age children consume most of the household resources of food, clothing and specifically education. Mothers may increase household resources by participating in the labor market. Due to gender disparity in developing countries – even in children's consumption and investment in them – boys and girls may affect a mother's decision to work differently. To investigate such gender difference, we have included the gender aspect of the children, i.e. whether presence of boys or girls affect labor force participation. Such analysis is significant in Pakistani society where gender disparity exists at large for children's human capital formation. The priorities of parents differ for sons and daughter. The study has found that the presence of school-age girls in the household increases the

labor force participation of married women, while the presence of boys decreases it. This shows the complementarity of the presence of girls in the household and women's labor force participation (see also, Tiefanthlar, 1997; Connelly, 1996). The explanation may be that females in the household, especially young daughters, act as providers of free child-care, relieving mothers for market work.

4.9 Number of Prime-Age Children

The presence of prime-age children (16 years or above) in the household may affect the labor supply of mothers differently as compared to infants and school-age children. Prime-age children belong to the working-age group so they may increase household resources by joining the labor force. Again the presence of male and female prime-age children may differently affect their mother's labor supply as female prime-age children have comparatively less opportunity for labor force participation and more consumption expenditures due to being in the marriage-age group and the presence of the dowry system. We have included the number of male prime-age children and number of female prime-age children as explanatory variables. It is found that the presence of male prime-age children in the household negatively affects maternal labor force participation. The possible explanation may be that these children increase the household resources so women are under less pressure to work. Similarly, in the household enterprises, the presence of male prime-age children lessens the demand for women's labor. The presence of an additional male prime-age child in the household decreases the probability of the mother's labor force participation by 10.2 %. Thus, male prime-age children in the household are substitutes for women's labor force participation (see also Lokshin *et. al.* 2000 for Kenya).

4.10 Husband's Education

The parameters of the husband are critical in determining the labor force participation of married women in a society such as Pakistan's. The husbands usually act as head of households, are always the main bread winner of the household and steer the activities of household members. For married women, the decision of labor force participation is affected by the characteristics of the head of the household. Characteristics such as education level, employment status and income level also determine the socio-economic status of the households which ultimately affect the participation of women in the labor market. Huth (1978) has studied the working and non-working status of married women free of their financial

needs in relation to their husband's attitudes. The work status of married women was found to be significantly related to their husband's attitudes towards women which were determined by education. Duncan *et. al.* (1993) have also shown that the level of the husband's education significantly affects the probability of women working. We have included in the regression two types of variables for the education of husbands, i.e. number of years of education as a continuous variable and the literacy status of husband, whether the husband is literate or illiterate (as a binary variable). It is found that the labor force participation of married women is inversely related to the educational level of the husband (as a continuous variable). Conceptually, it is a unique result because generally it is assumed that educated husbands are unbiased towards negative social and cultural norms and allow the women to participate in the labor force. The results lead to the notion that the decision of women to participate in the labor force is economically based. Since educated husbands are likely to earn more income, the economic status of the household is kept high and female involvement in earning activities remains low. Similarly, women with literate husbands (as a binary variable) are 9.7 % less likely to be economically active. This again shows that uneducated husbands have low productivity in the labor market so the income level of households remains low and women of the household are pushed into the labor market. It may also be argued that uneducated or illiterate husbands have a larger number of children compared to educated husbands so the household is more likely to be poor. Furthermore, an illiterate head of household and a larger number of children are characteristics of poverty. Ultimately, poverty of the household is the main factor compelling married women to work.

4.11 Husband's Employment and Income

Husband's employment status and income level are also critical for the decision of women's labor force participation, on the assumption that women's labor force participation is generally caused by the household's economic vulnerability where the male adults are responsible for household expenditures.¹³ Blau and Kahn (2005) have concluded that the major reason for the rapid growth of female labor supply is the fall in the husband's real wages. Sultana *et. al.* (1994) have also found similar results, i.e. an increase in the male wage rate reduces women's time in market work. The husband's

¹³ To check the robustness of the results of the impact of husband's income on the labor force participation of married women, the sensitivity test similar to section 4.5 is applied and no endogeneity was found among the educational level, employment and income level of husbands in the present analysis.

employment affects the wife's employment in another way, i.e. if the husband is transferred or employed at another place which is different from his wife's place of employment, the wife has to sacrifice her job. The wedlock transfer policy by the Government of the Punjab¹⁴ is notable for such a type of circumstances. We have found that women with unemployed husbands are 13 % more likely to be involved in economic activity and the labor force participation of women is negatively related to the income level of husbands. Unemployment and a husband's low level of income lead to poverty of the household. This means that poverty in all its aspects, i.e. lower household per capita income, larger number of children in the household, lower educational and income level of husbands and unemployment of husbands increases the labor force participation of married women.

4.12 Locality of Household

We have found that the locality of the household (urban or rural) has a significant effect on the labor force participation of women (see also Salway, 2003 for Bangladesh; Fleischer and Applebaum, 1992 for Israel). Rural women are more likely to participate in economic activities than urban women (see also Jamil, 2001 for Pakistan). The result corroborates the national figures of labor force participation. The refined activity (participation) rate for females is 16.8 % in rural areas and 10.0 % in urban areas (FBS, 2003:15). The weak financial background, larger family size of rural households and general environment to work on farms may be the major reasons, but the result contradicts the general perception that urban women have a higher literacy rate as compared to rural women and they are economically more active in factories, offices, and other organizations in the formal sector.

5. Conclusions

The model and estimation we presented above allows us to analyze the labor force participation of married women. The main finding is that poverty pushes married women into labor force participation. It reflects that the majority of married women work in the informal sector. So increasing the income and productivity of working mothers, specifically in the informal sector may have trickle down effects on the reduction of household poverty.

¹⁴ The Wedlock Transfer Policy by the Government of Punjab stated that if the husband is transferred to another place of posting than that of his wife, the wife will be transferred to the place of posting of the husband and vice versa.

On the same lines, if more mothers are involved in the labor force national poverty may decrease substantially. These conclusions have important economic and policy implications.

- To enhance the labor force participation of married women, the policy regarding women's employment is to be carefully planned. As poverty is the main cause of labor force participation of married women, the minimum wage legislation should be rationalized in the changing economic conditions. If minimum wage legislation is maintained, it should be further ensured that the increases in wages be realistic.
- The government must establish educational and vocational training institutions for adult women, so that they can increase their skill productivity and labor force participation.
- As rural women are more likely to be involved in productive activities, it is necessary to recognize their income contributions in the household. In rural areas informal sector activities are prevalent and agro-based industries hardly exist in Pakistan. It is necessary to organize the informal sector and encourage the private sector to establish agro-based industries. The training facilities for such industries are also emphasized.
- The government should also ensure the provision of family planning and subsidized childcare facilities. In this way mothers are freed from child-care duties and can more easily participate in economic activities.
- Mothers as heads of households are found to be more likely to be involved in economic activity. As female-headed households are more vulnerable to poverty due to low income and high expenditure, the policy formation must target such women to raise their income and wages.
- The life cycles of married women show that labor force participation increases with age and then it decreases. The decrease in labor force participation of mothers may be restricted by providing them social security benefits, standard wages, benefits of annual increments and benefits such as pension and employee's old age benefits.
- Subsidized child-care facilities would not only increase maternal labor force participation but girls' school participation would also increase, as the estimates show that girls in the school-age group manage household chores and free their mothers for work.
- As the increase in household per capita income has shown a declining effect on the labor force participation of married women, a

relaxed tax system may be introduced to favor the earning spouse of the household to stop the decreasing tendency of mothers' economic activity.

- The greater probability of married women' labor force participation from rural households, poor households, households with a larger number of children, and married to poorly educated, illiterate, unemployed, and low-income husbands reflects the informal structure of the economy absorbing the female labor force.

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