

## How Do Women Decide to Work in Pakistan?

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### 1. INTRODUCTION

The incidence of women labour force participation is very low in Pakistan. According to the *Labour Force Survey, 1999-2000* female participation rate was merely 14 percent of the total labour force. Even though average annual growth rate of female labour force participation has been increasing slightly in Pakistan; it was 4 percent in 1980-99 and has gone up to 5.1 percent during 1995-98,<sup>1</sup> however, this rate is still very low as compared to the other South Asian countries—42 percent in Bangladesh, 41 percent in Nepal, 32 percent in India and Bhutan, 37 percent in Sri Lanka [World Bank (2002)].

This paper is an attempt to identify household related factors that lead to women participation in the economic activities. This issue has been taken up in a number of other studies.<sup>2</sup> The innovative aspect of this paper is that it relates women's decision to participate in economic activities with their empowerment—who makes the decision to participate in the labour force—whether it is the women themselves or others. We would like to state at the very onset that this paper is a first cut to explore the issues of women's participation in economic activities and their and empowerment. We hope to get feedback in the conference to improve the technical aspects of this paper and explore other aspects of this issue.

Some key empirical findings of this paper are that the women economic participation is significantly influenced by factors such as their age, education and marital status. The employment status of the head of the household (generally a male), presence of male member, and children of ages 0–5 are also important variables that significantly affect women's participation in economic activities. We identified marital status, education level, family size, household's financial status and area of residence as the main causal factors behind women making their own decisions about paid employment.

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*Authors' Note:* The views presented in this paper are those of the authors and not of the organisation in which they work.

<sup>1</sup>See *Labour Force Survey 1997-98* for detail.

<sup>2</sup>Hafeez and Ahmed (2002); Malik, *et al.* (1994); Kozel and Alderman (1990); Rashed, Lodhi and Chishti (1989); Shah (1986) and Shah, *et al.* (1976).

The paper divided into six sections. First section presents the introduction, second describe the relevant literature. In the third section the estimation techniques are discussed while data source and variables are explain in section four, respectively. The results of the estimation are illustrated in the fifth section. The paper is ended by section six, which offer some concluding remarks and policy implications.

## 2. LITERATURE REVIEW

This section reviews the literature on labour force participation (hereafter LFP) and labour supply both within and outside Pakistan. The traditional theory of utility maximisation, Becker (1965) developed a theoretical model of time allocation. Time is used as an additional commodity in the utility maximisation process. The study assumes that the households are producers as well as consumers. They produce commodities by combining inputs of goods and time. The effect of changes in earning, other income, prices of goods, and the productivity of working and consumption time on the allocation of time and commodity set produced have been analysed. For example, an increase in wage rate would induce a decline in the amount of time used on consumption activities and an increase in market production because time would become relatively more expensive. Goods would be partly substituted for time in the production of each commodity and goods intensive commodities would be partly substituted in place of the more expensive time intensive ones. Both these substitutions result in less time used in consumption activities and allow more time to be used for work. Since reallocation of time involves simultaneously a reallocation of goods and commodities, all three decisions (about market production, home production and consumption) become interrelated.

Similarly, Berndt (1990) overviewed some theoretical issues underlying labour force participation and labour supply decisions of individuals and households. The neoclassical model of labour supply considered in the study is in essence an application of the theory of consumer behaviour. The individual is assumed to allocate time to market and to non-marketable activities (typically leisure). Utility is maximised by choosing combination of goods and leisure hours subject to time and income constraints. The study showed that increase in wage rate, other things (e.g. non-labour income, preferences and prices) being same, will increase the price of time intensive activities and is likely to result in increase in hours of market time and a decline in the amount of leisure. On the other hand, an increase in non-labour income will cause an increase both in leisure and consumption of goods. Therefore, pure income effect on hours of labour supply is negative.

Mincer (1962) investigated the relationship between hours of work and female participation in the labour force over lifetime. He found that family income has no effect on wife's demand for leisure. The probability of LFP is inversely related to lifetime wealth measures. He concluded that the number of children also affect lifetime labour supply decisions significantly.

Shah, *et al.* (1976) analysed the effects of selected demographic and socio-economic variables on LFP in the four provinces of Pakistan. The results indicated that work participation is inversely associated with child-women ratio and nuclear family type. Marital status, dependency ratio and literacy rates are found to have positive relation with LFP.

Shah (1986) made an attempt to interpret the changes in women role in Pakistan between 1951 and 1981 and its adequacy in relation to national targets. The study concluded that the socio-economic status (ownership of durable goods, husband's education and observance of *pardah*) of the family has a negative impact on women labour force participation decision.

Kozel and Alderman (1990) studied the factors determining work participation and labour supply decision in the urban areas of Pakistan by using OLS regression as well as a Tobit model. Similarly, [Rashed, Lodhi and Chisti (1989)] investigate different demographic and socio-economic factors of women's labour force participation behaviour in their study for Karachi using Probit model. Empirical results of both the studies indicate that LFP rate rises with increase in the expected earning, wages and level of education. The presence of male members in the family tends to decrease the likelihood that a woman will work, while the presence of other women (aged 7 years and above) tend to increase the likelihood of women employment. LFP rate also declines with domestic and foreign remittances.

Ibraz (1993) investigated the women participation in productive activities that are geared directly or indirectly towards productive utilities of some kind in his village based study for Rawalpindi district for the year 1989-90. The study concluded that institution of *pardah* and segregation of sexes, which confine women and their activities to the private domains, act as effective cultural device in creating hindrance to women productive roles.

Malik, *et al.* (1994) found that woman's age, education, and the number of dependents do not significantly determine market time. Women wage rate and predicted male wage have significant and positive effect on women labour supply.

Aly and Quisi (1996) investigated socio-economic factors that influence Kuwaiti women's labour market participation decision. It was found that women's wage rate and education are positively correlated with LFP rate, where as marital status, the number of children and age is negatively correlated with LFP rate.

### 3. ESTIMATION METHOD

The study is based on cross-sectional data from the *Pakistan Integrated Household Survey (1998-99)*, concentrating on the sample of women aged 15–49. Women's economic activities and the decision regarding their paid employment is examined by analysing the various household level factors. Socioeconomic, demographic and human capital components are also considered. We look at two types of decisions that women and/or their families are making. One type of decision

is whether to participate in economic activities or not. The second level of decision-making related to women's empowerment-either they decide on their own to join the labour market or the decision is made with their consultation or by ignoring their voice by others.

We estimate two regression models: a Probit model and a Multinomial Logit model respectively. In the Probit model, the dependent variable, WPEA (women participation in economic activities) is a function of several explanatory variables. It can take only two binary values: 1 if the women either currently involved in economic activity for pay, profit or have worked in farms or shops, and 0 if she does not. We estimate nonlinear maximum likelihood function for the normal probability (Probit) model.

We start with a general function

$$Y_i = f(X_1, \dots, X_n) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (1)$$

where  $Y_i$  denotes WPEA.  $Y$  is equal to 1 if women participate in economic activity and equal to zero if she does not.  $X_1, \dots, X_n$  represent various socio-economic and demographic factors leading women decision to be involved in economic activity.

### Normal Probability (Probit) Model

In order to explain the dichotomous dependent variable we used the Probit model that emerges from the normal cumulative distribution function.<sup>3</sup> Suppose  $y^*$ , the ability to participate in the economic activity, is unobservable and it depends on a set of observed factors  $X_i$ . That is

$$y_i^* = \beta X_i + \varepsilon_i \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (2)$$

where  $\beta$  is a row vector of parameters, and  $X_i$  is the column vector of the variables that affect  $y^*$  and  $\varepsilon_i$  is normally distributed with 0 mean. The observable binary variable is related to  $y^*$  in the following sense

$$Y = 1 \quad \text{if } y^* > 0 \\ = 0 \quad \text{otherwise}$$

Given the normality assumption, the probability that  $y^*$  is less than or equal to  $Y$  can be computed from the standardised normal cumulative distribution function as

$$P_i = \Pr(Y = 1) = \Pr(y^* \leq Y) = F(Y_i) = \int_{-\infty}^{BX_i} f(z) dz \quad \dots \quad \dots \quad \dots \quad (3)$$

where  $f(z)$  represents density function,  $z$  is normally distributed with 0 mean and unit variance and  $P_i$  is the probability that a women will participate in economic activities.

<sup>3</sup>Berndt (1991); Gujratai (1995); Kmenta (1971) and Greene (1992).

**Multinomial Logit Model**

To examine how women paid employment decision is made in Pakistani household; we carry out a multivariate analysis. Our dependent variable in this model is categorised into three mutually exclusive categories. The women employment decision in a household can take various options: first, women decide themselves, secondly, the head of the household and spouse in consultation with the women concerned. Thirdly, other members of the household decide alone. These alternatives are categorised as 1, 2 and 0 respectively and constituted as multinomial Logit model which was suggested by Greene (1992).

Assuming that the errors in this model are independently and identically distributed with Weibull distribution then the difference between the errors has a logistic distribution Greene (1992) and the multinomial Logit is the appropriate technique of estimation. The probabilities in multinomial Logit model are therefore given by

$$\begin{aligned}
 Prob(Y = j) &= \frac{e^{\beta_j x_i}}{1 + \sum_{k=1}^J e^{\beta_k x_i}} \\
 Prob(Y = 0) &= \frac{1}{1 + \sum_{k=1}^J e^{\beta_k x_i}} \text{ for } j = 1,2,3 \quad \dots \quad \dots \quad \dots \quad (4)
 \end{aligned}$$

Where coefficients  $\beta$ 's are normalised to zero and  $x$  is the vector of explanatory variables. Normalising the coefficient of one of the category to zero identifies the multinomial Logit model. Hence we normalise the coefficient of the alternative of non-migrant to zero. The coefficients in our models are difficult to interpret because they only provide information on the effects of independent variables on the odds ratio. To interpret the effects of independent variables ( $x$ ) on the probability of each category of decision regarding paid employment we calculate partial derivatives as

$$\frac{\partial P}{\partial X} = P_j(1 - P_j)\beta_{xj} - \sum_k P_j P_k \beta_{xk} \text{ where } j, k = 1,2,3 \quad \dots \quad \dots \quad (5)$$

where  $P$  is the probability of being a member of each alternative. The Log of Likelihood function is defined by defining for each individual  $d_{ij} = 1$  if alternative category  $j$  is chosen for individual  $i$ , and 0 if not, for the other possible outcomes. Then for each individual  $i$ , one and only one of  $d_{ij}$ 's is one Greene (1992). The log likelihood function is given by

$$\ln L = \sum_i \sum_j d_{ij} \ln Prob(Y_i = j) \quad \dots \quad \dots \quad \dots \quad \dots \quad (6)$$

Our model is based on the assumption that these options are independent of each other. The parameters for each category of decision making in each model are obtained from the estimation of a single maximum likelihood Logit.

#### 4. DATA SOURCE AND VARIABLES

We have used the *Pakistan Integrated Household Survey (PIHS), 1998-99*<sup>4</sup> to look at women participation in economic activity. For the first time the PIHS collected data on various aspects of women's decision-making including their decision to participate in the labour market, education and fertility choices. We have tied the women's employments section with the section on women's decision-making regarding their own paid employment. This nation-wide sample survey records information on socio-economic, demographic, human capital and geographical conditions of the household and individuals. In this survey, 114996 individuals from 16305 households, stratified both on urban and rural backgrounds and by the four provinces and the Azad Jammu and Kashmir (AJK), FATA and FANA were enumerated for data collection. A sample of 19218 women in the age cohorts of 15–49 years was drawn from the survey. We use women aged 15 to 49 as the units of observation in our empirical analysis because these women answered questions both on their employment aspects as well as decision-making aspects. It should be noted that our implied definition of female labour force participation rate is different from the standard definition (e.g. used in the *Labour Force Survey*). We are primarily focusing on working women's participation in economic activity and do not consider women below the ages of 15 years and above 50 years, whereas the standard definitions consider all women 10 years and above to compile the female labour force participation rate.<sup>5</sup> The dependent variables in our empirical analysis are women who participate in economic activities and women decision-making regarding their employment, are defined in Table 2. The explanatory variables of the model are also defined in Table 2 while their summary statistics is provided in Tables 3 and 4.

It is convenient to describe explanatory variables in various groups. The explanatory variables are the household level factors that may be affecting women's participation in economic activities and women's decision-making regarding their own paid employment in Pakistan. First groups of explanatory variables that have been used in the study are the women characteristics including the age of the women in

<sup>4</sup>The purpose of PIHS is to monitor the Social Action Programme of the Government of Pakistan by data collection on various socio-economic aspects of households in Pakistan. The PIHS is characterised by integrated, pre-coded questionnaires, extensive training and supervision of field staff, and a computer-based data management system designed to improve data quality and to reduce the time lag between the data collection and the publication of the results.

<sup>5</sup>The discussant pointed out that our implied female participation rate of 22.8 percent (Table 3) was approximately 9 percent higher than the female labour force participation rate given in the LFS. This is because we excluded women in the age cohorts 10–14 years and 50 years and above, who generally have low participation rates. Moreover, our estimates are based on the unweighted sample from the PIHS.

Table 1

*Labour Force Participation Rate, by Gender and Rural/Urban Distribution*

		Both	Male	Women	Improved Women Participation Rate*
		Sexes			
1990-1991	Total	43.2	71.3	12.8	47.5
	Rural	45.2	73.6	14.8	60.0
	Urban	39.0	66.6	8.6	21.5
1991-1992	Total	42.9	70.3	14.0	46.0
	Rural	45.3	72.5	16.7	59.0
	Urban	37.9	65.5	8.0	17.6
1992-1993	Total	42.4	69.2	13.2	41.2
	Rural	44.6	71.3	15.9	53.3
	Urban	37.5	64.9	7.3	15.4
1993-1994	Total	42.0	69.1	13.3	42.5
	Rural	44.2	71.0	16.0	54.1
	Urban	37.0	64.7	7.2	15.4
1994-1995	Total	41.3	69.1	11.4	39.8
	Rural	43.1	71.3	13.3	50.4
	Urban	37.0	64.3	7.0	15.5
1996-1997	Total	43.0	70.0	13.6	38.4
	Rural	45.1	71.8	16.3	49.1
	Urban	38.9	66.5	8.4	17.1
1997-1998	Total	43.3	70.5	13.9	40.7
	Rural	46.4	73.4	17.4	54.6
	Urban	37.7	65.2	7.4	15.1
1999-2000	Total	42.8	70.4	13.7	39.2
	Rural	45.1	73.1	16.1	51.7
	Urban	38.1	65	8.8	13.4

Source: Various Labour Force Survey 1990-2000.

\* Includes women spending time on 14 agricultural/non-agricultural activities which are considered out of labour force.

Table 2

*Definitions of Variables*

Variables	Description
<b>Dependent Variable</b>	
<b>( for Probit Model )</b>	
<i>WPEA</i>	= 1 if the women either currently involved in economic activity for pay, profit or have worked in farms or shops, and 0 otherwise.
<i>WPEA</i>	= 0 if the women or not currently involved in economic activity for pay, profit or have worked in farms or shops, they are working in their own household work and 0 otherwise.
<b>Dependent Variable</b>	
<b>(for Multinomial Logit Model)</b>	
<i>HERSELF</i>	=1 if women decision regarding their own paid employment is made by themselves and 0 otherwise.
<i>CONSULT</i>	=1 if women decision regarding their own paid employment is made by other member of the household with the consultation of woman concerned and 0 otherwise.
<i>OTHERS</i>	=1 if women decision regarding their own paid employment is made by other member of the household (excluding women concerned) and 0 otherwise.
<b>Explanatory Variable</b>	
<b>Women's Characteristics</b>	
<i>AGE</i>	Age of the women 15–49 years in completed years.
<i>AGSEQ</i>	Age of the women 15–49 years in completed years squared
<i>MARRIED</i>	=1 if women are married and 0 otherwise.
<i>WIDOW</i>	=1 if women are widow and 0 otherwise.
<i>DIVORCED</i>	=1 if women are divorced and 0 otherwise.
<i>PRIMARY</i>	= 1 if women's highest level of completed education is primary and 0 otherwise.
<i>SECONDARY</i>	= 1 if women's highest level of completed education is secondary and 0 otherwise.
<i>HIGH</i>	= 1 if women's highest level of completed education is above secondary and 0 otherwise.
<b>Head of Household Characteristics</b>	
<i>HAGE</i>	Age of the head of household in completed years.
<i>HAGESEQ</i>	Age of head of household in completed years squared
<i>HILLIT</i>	= 1 if head of the household is illiterate: cannot read, write and solve a simple sum and 0 otherwise.
<i>EMPLOYER</i>	=1 if the individual employment status is an employer; <sup>6</sup> employing less than 10 and more than 10 persons and 0 otherwise.
<i>EMPLOYEE</i>	=1 if the individual employment status is paid employee, <sup>7</sup> and 0 otherwise.
<i>SELFEMPL</i>	=1 if the individual employment status is self-employed; <sup>8</sup> unpaid family helper and self-employed, and 0 otherwise.
<i>UNPAID</i>	=1 if the individual employment status is unpaid family helper <sup>9</sup> and 0 otherwise.
<b>Household Characteristics</b>	
<i>FHEAD</i>	= 1 if the head of the household is a woman and 0 otherwise.
<i>NCHILD</i>	Number of children in the age group of 0-5 years in the household.
<i>FTYPE</i>	= 1 if a woman lives in a nuclear family: family consisting of a head, spouse and unmarried sons and daughters and 0 otherwise.
<i>FSIZE</i>	Total member of the household.
<i>MALEM</i>	Presence of a male member in the household.
<b>Economic Status of the Household</b>	
<i>MHEXP</i>	Household monthly expenditure in rupees.
<b>Residence of Household</b>	
<i>REGION</i>	= 1 if household is geographically located in what constitutes a rural area and 0 otherwise.

<sup>6</sup>A person who has employed one or more persons, on a continuous basis, during the reference period, is defined as employer. He may own an enterprise by himself or together with one or more persons.

<sup>7</sup>A person who works for a public or private employer and receives remuneration in wages, salary, commission, tips, piece rates or pay in kind. It includes regular paid employee, casual paid employee, paid worker by piece rate or service performed, and paid non-family apprentices.

<sup>8</sup>A person who, during the reference period, performed some work for profit and family gain, in cash or in kind, on a job where the remuneration is directly dependent upon the profits, or the potential profits, derived from the goods and services produced. Self-employed persons do not get assistance from anyone, not even from unpaid family helpers. And own account non-agricultural worker: an own account worker is a person who operates his or her own economic enterprise or engages independently in a profession or trade and hires no employees. However, he/she may get the assistance of unpaid family helpers. Owner cultivator means a person who cultivates his/her own land. Share-cropper means a person who cultivates land owned by others on the basis of sharing the produce. Contract cultivator means a person who cultivates land owned by others on a rent.

<sup>9</sup>A person who works for pay in cash or in kind on an economic enterprise operated by a member of his/her household or other related persons is termed as unpaid family worker.



Table 3  
 Summary Statistics of Women's Participation in Economic  
 Activities and Probit Estimates

Variables	WPEA=1 Mean (Stan. Dev.)	WPEA=0 Mean (Stan. Dev.)	Coefficients <i>t</i> -statistics	Derivatives
<i>Constant</i>	-	-	-1.766 (-11.351)**	-0.459
<b>Women's Characteristics</b>				
AGE	29.107 (9.56)	27.4 (9.512)	0.0549 (6.418)**	0.014
AGESEQ	938.699 (589.326)	842.7 (574.160)	-0.006 (-5.015)**	-0.000
MARRIED	68.6 (0.464)	65.9 (0.474)	-0.163 (-4.858)**	-0.042
WIDOW	2.9 (0.170)	1.6 (0.125)	0.202 (2.668)**	0.052
DIVORCED	1.1 (0.106)	0.3 (0.056)	0.617 (4.404)**	0.160
PRIMARY	8.9 (0.285)	11.9 (0.323)	-0.010 (-0.310)	-0.002
SECONDARY	7.4 (0.263)	12.5 (0.331)	0.090 (2.486)**	0.023
HIGH	5.5 (0.227)	5.0 (0.218)	0.761 (15.939)**	0.197
<b>Head of Household Characteristics</b>				
HAGE	45.5 (13.637)	47.1 (14.042)	0.038 (0.892)	0.000
HAGESEQ	2253.2 (1313.853)	2414.349 (1405.9)	-0.000 (-2.105)**	-0.000
HILLIT	63.4 (0.482)	49.2 (0.500)	0.206 (9.221)**	0.053
EMPLOYER	1.4 (0.115)	2.3 (0.150)	-0.261 (-3.197)**	-0.067
EMPLOYEE	28.6 (0.452)	34.2 (0.474)	-0.121 (-5.461)**	-0.031
UNPAID	2.6 (0.158)	1.2 (0.107)	0.367 (4.743)**	0.095
<b>Household Characteristics</b>				
FHEAD	7.5 (0.263)	6.8 (0.252)	-0.142 (3.404)**	-0.037
NCHILD	1.3 (1.35)	1.4 (1.520)	-0.046 (-4.158)**	-0.011
FTYPE	53.5 (0.499)	49.2 (0.500)	-0.018 (-0.781)	-0.004
FSIZE	7.8 (3.6)	8.4 (4.270)	0.020 (3.600)**	0.005
MALEM	2.56 (1.534)	2.9 (1.766)	-0.034 (3.249)**	-0.008
<b>Economic Status of the Household</b>				
MHEXP	4416.9 (3388.5)	6109.1 (5466.934)	-0.001 (-15.211)**	-0.0001
<b>Residence of Household</b>				
RURAL	80.9 (0.392)	65.2 (0.476)	0.371 (15.561)**	0.096
Sample Size	22.8%	77.2%		
Log Likelihood			-10575.4	

Note: \*Indicates significant at the 5 percent level, and \*\* indicates significant at the 1 percent level.

Table 4  
*Summary Statistics of Women's Decision-making Regarding  
 Their Own Paid Employment*

Variables	Herself Mean (Stan. Dev.)	Consult Mean (Stan. Dev.)	Others Mean (Stan. Dev.)
<b>Women's Characteristics</b>			
AGE	28.4 (9.600)	23.5 (7.950)	26.9 (9.410)
AGESEQ	901.2 (584.2)	615.1 (455.7)	814.9 (563.579)
MARRIED	56.4 (0.496)	34.8 (0.476)	65.6 (0.475)
PRIMARY	14.7 (0.354)	10.8 (0.311)	17.2 (0.378)
SECONDARY	22.9 (0.421)	24.1 (0.428)	21.4 (0.410)
HIGH	15.3 (0.360)	15.0 (0.357)	8.1 (0.273)
<b>Head of Household Characteristics</b>			
HAGE	46.7 (13.300)	51.2 (15.520)	46.5 (13.910)
HAGESEQ	2359.7 (1300.4)	2867.0 (1594.9)	2352.2 (1369.225)
HILLIT	45.7 (0.498)	47.4 (0.499)	53.0 (0.499)
<b>Household Characteristics</b>			
FHEAD	7.3 (0.261)	6.1 (0.240)	2.6 (0.158)
FSIZE	7.2 (3.200)	8.8 (4.420)	8.5 (4.300)
<b>Economic Status of the Household</b>			
MHEXP	6836.8 (6828.7)	7934.7 (6551.3)	5592.6 (4713.2)
<b>Residence of Household</b>			
RURAL	56.8 (0.495)	50.9 (0.500)	70.3 (0.457)
<i>Sample Size</i>	<i>15.4%</i>	<i>3.1%</i>	<i>81.5%</i>

years, completed level of education and marital status of the women. Second are head's characteristics, which include dummy variables for the literacy and employment status of the head of household. Third are household characteristics, which might play a critical role in the decision-making process and participation of women in economic activities. These include whether the woman is the head of household, the number of pre-school age children (aged 0–5), the type of family arrangement (joint or nuclear), total members of the household, presence of male and women members in the household. Fourth is financial status of the household where

the economic status of respective households are explained by monthly household expenditure. Finally, we also include regional dummies to control for provincial differences across households and regions.

## 5. ESTIMATION RESULTS

### Estimates of Probit Model

We estimate a Probit model on a set of explanatory regarding women's participation in economic activities. Three sets of numbers are also reported in Table 3, which are estimated parameters, their asymptotic *t*-statistic (in parenthesis) and probability derivatives at the mean of the explanatory variables in the last column. The probability derivative indicates the change in probability on account of a one-unit change in a given independent variable after holding all the remaining variables as constant at their mean.

The results indicate that, women's age positively influences the possibility of their involvement in economic activity. Marital status of women is another factor affecting the decisions of women in economic participation. In Pakistan, married women are less likely to participate in economic activities. The opposite is true for the widow or divorced women. Results indicate that married women are 4.2 percent less likely to participate in economic activity. However, divorced women are more likely to participate in economic activities by 5.2 percent. Being a divorcee is also another significant factor, which positively increases the possibility of women's economic participation by 16 percent.

Education plays an important role in women's decisions of economic participation. Education qualifications enhance the job prospects of all individuals, and also for women. Generally, for women as the education level increases the economic participation increases. The same trend has been observed in this research regarding the relationship between the education levels and the participation of women in economic activities. Primary education affects the participation of women negatively; however, the coefficient is statistically insignificant. On the other hand, completing secondary education affects the possibility of women's decision of economic participation by 2.3 percent. The most striking difference has been observed in the case of the completion of above secondary education level. Women who completed above secondary level education are 19.7 percent more likely than the other women to participate in economic activities.

Patriarchal family structures and values are common in Pakistan. In order to understand the participation decisions of women, the characteristics of the head of the household, who are typically males, have been included in the regression. From the estimation results, it has been observed that in the households with illiterate heads, women are 5.3 percent more likely to participate in economic activities. This could be because the employment prospects of illiterate male head of the households are dim

and in such households the women are forced to work outside the house. This also related to the next set of variables where the probability of women's participation in the labour force increases if the head of the household have low human capital and can only find jobs in the category of family helpers.

The economic status of the household is another factor indicating the need for additional economic resources in the household. When the household heads are employer or employee, women are 6.7 percent and 3.1 percent less likely to participate, respectively, in economic activities. However, when the household heads are unpaid family helpers, women are 9.5 percent more likely to participate in the economic activities.

We would have expected that in female-headed households, women would be more likely to participate in economic activities. However, our results contradict this assumption and show that women are 3.7 percent less likely to participate in economic activity. Only 7.5 percent of our sample are female-headed households. The role of female headed households needs to be explored in greater detail to get a better assessment of the characteristics of these households which do not follow normal assumptions regarding the poverty status, employment etc., in the PIHS and other household surveys (e.g. HIES).

When the number of children, who aged 0-5, increases by one, women are 1.1 percent less likely to participate. These results indicate that as the reproductive responsibilities in the home increases, women are more likely to postpone or abdicate participation in economic activities in order to reconcile unpaid household and economic activities.

It has also been observed that the women living in nuclear families are 0.4 percent less likely to participate in economic activities. However, the coefficient of this variable is insignificant. Supporting the previous result, when the family size increases by one, women are 0.5 percent more likely to participate in the economic activities. The results of the study also indicate that presence of a male member in the household decreases the possibility of women to participate in economic activities by 0.8 percent.

Financial difficulty is another reason usually having a negative relationship with women's economic participation. Higher economic needs drive more women in the economic activities where in households with higher incomes women are less likely to participate in economic activities. An increase of monthly expenditure by one rupee decreases the possibility of women involving in economic activities by 0.01 percent. In household residing in rural areas of Pakistan, women are 9.6 percent more likely to participate in economic activities.

### **Estimates of Multinomial Logit Model**

We estimate a multinomial Logit model with the maximum likelihood estimation procedure on a set of explanatory variables such as marital status,

education level, family size, household's financial status and area of residence are the main causal factors behind women making their own decisions about paid employment.<sup>10</sup> Table 5 presents the estimates of the model, three sets of numbers are reported which are probability derivatives, estimated parameters, and their asymptotic *t*-statistic (in parenthesis). The probability derivative indicates the change in probability due to one-unit change in a given independent variable after holding all the remaining variables as constant at their mean.

We found that age has a positive and significant effect on women's decision in both cases either when she decides herself or with the consultation. Education is an important factor in determining the amount of decision-making powers with the women concerned. As educational level increases, the women have greater chance to decide on their own. It has been observed that being below Matric level does not have any effect on the decision power of women. However, education above Matric level renders more power to the women in her decision. Around 3 percent women, who were above Matric made decision by themselves and 1 percent consulted by another household member while making decision regarding her employment. The above effects are also statistically significant. This result reinforces the claims that with university education the likelihood of a woman being in the labour force increases around three times more than the likelihood of a man's [Kozel and Alderman (1990)].

Approximately 10 percent married women are less likely to decide their employment decisions by themselves and 3 percent less likely to be consulted by the other members of the household in making their employment decision. These results are also highly statistically significant. This negative correlation is understandable in Pakistani society that husbands will have 'a say' in their spouse's decision to enter the work force especially if it conflicts with their roles as a wife or a mother. It is generally accepted that in Pakistani society, the husband's approval or disapproval is an important factor in whether a wife will perform a certain activity or not [Shah (1986)].

It has been observed that older heads have greater probability to give the power to women to decide her employment decision. The same pattern has been found in the case where women were consulted while making their employment decisions. The effect of illiteracy of the head of household is negative and insignificant in both cases. Presence of larger member in the household decreases the probability of women deciding themselves or with consultation. The effect is statistically significant in the former case.

Women in female headed households are more likely to make decisions on their own regarding employment. About 9 percent women are responsible for their decisions in the and 2 percent women in these households are consulted while making decisions of employment. The coefficient of female-headed households is positive and

<sup>10</sup>The discussant for the paper pointed out that the above-mentioned decision-making variables of the Multinomial Logit model should be used as explanatory variables in the Probit model and the former should be dropped. We feel that this is a very good suggestion that will be taken up in further research.

Table 5

*Multinomial Logit Estimates for Women's Decision-making in Pakistan*

Variables	Herself		Consult		Others
	Derivatives		Derivatives		Derivatives
	Coefficients	<i>t</i> -statistics	Coefficients	<i>t</i> -statistics	
<i>Constant</i>	-0.352		-0.066		0.418
	-3.801		-2.752		
	(-10.178)**		(-4.469)**		
<b>Women's Characteristics</b>					
AGE	0.017		0.000		-0.019
	0.191		0.090		
	(9.823)**		(2.553)**		
AGESEQ	-0.000		-0.000		0.001
	-0.024		-0.015		
	(-7.850)**		(-2.659)**		
MARRIED	-0.098		-0.031		0.129
	-1.081		-1.177		
	(-16.676)**		(10.303)**		
PRIMARY	0.008		-0.010		0.002
	0.071		-0.339		
	(0.932)		(-2.334)**		
SECONDARY	0.013		-0.000		-0.013
	0.136		-0.054		
	(1.947)*		(-0.047)		
HIGH	0.031		0.010		-0.043
	0.349		0.409		
	(4.238)**		(3.122)**		
<b>Head of Household Characteristics</b>					
HAGE	-0.000		-0.001		0.002
	-0.030		-0.050		
	(-0.318)		(-3.414)**		
HAGESEQ	0.000		0.000		-0.000
	0.0001		0.006		
	(0.940)		(4.453)**		
HILLIT	-0.000		-0.003		0.004
	-0.065		-0.125		
	(-0.104)		(-1.220)		
<b>Household Characteristics</b>					
FHEAD	0.094		0.023		-0.118
	1.027		0.933		
	(10.127)**		(4.918)**		
FSIZE	-0.011		0.000		0.011
	-0.121		-0.090		
	(-16.344)**		(-0.988)		
<b>Economic Status of the Household</b>					
MHEXP	0.000		0.000		-0.000
	0.000		0.000		
	(10.533)**		(5.140)**		
<b>Residence of Household</b>					
RURAL	-0.043		-0.016		0.059
	-0.480		-0.619		
	(-9.493)**		(-6.910)**		
Log Likelihood			-8841.34		

Note: \*Indicates significant at the 5 percent level, and \*\* indicates significant at the 10 percent level.

highly significant as it was expected. The female could be the head in case of demise of the husband, migration, unemployment or incapability rendered because of illnesses or disability. The reason for the high decision-making power is that in female-headed families, female heads are more concerned about the well being of both male and female members of the family and give them equal rights.

In Pakistan, the place of residence matters a lot, because of the traditions and customs that prevail especially in the rural areas. People can not be against these circumstances although having education or other exposure. In rural areas 3.4 percent women are less likely to decide their employment decisions by themselves, their decision are conducted by other members of the household. The coefficient of rural area is negative and statistical significant.

Socio-economic status of the household is also an important factor in determining women status among the households. It is generally believed that women's decision to enter the work force are caused by a low level of income available to them [Hamid (1991)] and their entry into the labour force is necessitated by their lack of income. However, our study is focused on a situation where females make their own decisions regarding employment and not factors which, result in greater female employment in the workforce. We estimated total household monthly expenditure (for proxy of income) and found the expected results. Our coefficient of *MHEXP* is positive and highly significant.

The PIHS 1998-99 questionnaire also provides important insights into why unemployed women in the productive age groups 15–45 do not work. We have not analysed this issue in detail in this paper but we do provide a breakup of the main answers given by women in Table 6. The bulk of the women (46 percent) who do not work say that they are not permitted by their husbands or fathers to work outside the house. This is followed by almost ¼th who do not work because they are too busy in domestic work—i.e. they are employed in unpaid domestic activities, but do not fall in

Table 6

*Reasons for not Seeking Work*

Reasons	Percentages
Not permitted by husband or father to work outside home	46.0
Too busy doing domestic work	24.3
Do not want to work outside home	13.0
Not enough job opportunities in region	6.7
Too old/retired/sick/handicapped	1.7
Don't know whether there exists an opportunity	0.9
Paid too low	0.4
Other	6.9
Total	100

the definition of employment. The third biggest category indicate that they do not work because they do not want to work outside the house. Other reasons preventing women to seek paid employment include lack of job opportunities in the region where they live; lack of awareness regarding employment opportunities, or if they are too old or incapable to work. Although we have not taken a detailed analysis at this stage, the above information on why women do not opt for paid employment gives useful insights on the challenges that we face in improving the environment and the mindset that allows more women to be involved in paid employment in Pakistan so that they become part of the productive labour force in the country.

## 6. CONCLUSION AND POLICY IMPLICATION

This paper is an attempt to connect two important aspects of women's decisions regarding their participation in economic activities and how these decisions are made. Our results are indicative of the observed bimodal distribution of women's participation in the labour force where we find women in larger numbers in low paid, low skilled jobs and also at the top skill end of the labour market. Our results show that everything remaining constant, the chances of a woman to be a paid and productive member of the society increases with education and improves significantly the better educated the woman is. Thus the focus on women's education is not only important to start the virtuous cycle of higher human capital, lower fertility, better care of children, etc., that demographers talk about but is an investment to push forward the boundaries of the country's production possibility curve and have a higher GDP.

At the lower end of the bimodal distribution we find that women's chances of being involved (generally in low skill, low paid economic activities) increases if they are coming from families which are located in rural areas, if the head of the household is illiterate and employed as an unpaid family helper. In these conditions women are forced to seek employment to supplement their family incomes. For these women and their families too more investment in human capital can have beneficial effects and would improve the quality of employment.

Looking at the decision-making process related to labour force participation, we find that women who are older, better educated, female head of the household, or coming from smaller better off urban families are more empowered to take decisions on their own about whether to get a job or not. In contrast, younger, poorly educated women who are from larger families enter the labour market not out of their own choice. Decisions whether they go out and get a job are made by other members of the households at times even without their consultation.

Although we take a cursory look at reasons that prevent women from entering the labour market, we find that existence of patriarchal relations are dominant. Almost half of the women in indicate that they are not allowed to work because their husbands and/or fathers do not want them to work outside the house. This indicates that to increase women's empowerment and their participation in economic activities a lot of



work needs to be done to change the mindset of husbands/father and other male household members. Also options that allow women to participate in economic activities from their homes (e.g. greater access to micro credit or home-based employment) would be important to bring in the bulk of women who for one reason or another are unable to seek paid employment outside their homes.

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## Comments

This paper has examined the effect of various demographic, socio-economic, and human capital-related factors on women's participation in economic activities. The paper looks at two types of decisions that women and/or their families are making. One type of decision is whether to participate in economic activities or not. The second type is related to women's empowerment: whether they decide on their own to join the labour market or the decision is made by someone else but with their consultation or by ignoring their say. The latter, according to the authors, is the innovative aspect of their paper.

Labour force surveys are commonly used in Pakistan to determine the factors associated with women participation in the labour market. This paper, however, has used the employment module included in the 1998-99 Pakistan Integrated Household Survey (PIHS). It is important to note that questions related to women's empowerments, including decision about labour force participation, were not included in the employment module. Rather they were made part of a module concerning empowerment of women in reproductive age, 15-49 years. This paper has therefore selected the sample of women of 15-49 years old whereas working age population in Pakistan, as used in labour force surveys, is 10 years or above.

By using probit and multinomial models, the paper shows that the chances of a women to be a paid and productive member of the society increases with education. The authors also find that women's chances of being involved in economic activities increase if they are coming from families located in rural areas, if the head of the household is illiterate and employed as an unpaid family helper. In these conditions, according to authors, women are forced to seek employment to supplement their family income. With respect to decision process related to labour force participation, the paper finds that women who are older, better educated, living in a household headed by female, or coming from better off urban families are relatively more empowered to take decisions on their own about their participation in labour market. In contrast, younger, poorly educated women who are from larger families enter into labour force not because of their own choice. Decision whether they go out and get a job are made by other members of the households even without their consultation.

The paper did not properly compare the female labour force participation rates derived from PIHS with labour force survey data. The authors show female participation rate as 23 percent that is about 9 percent point higher than labour force rates. Whereas the authors have selected the sample of women in reproductive age, 15-49 years, a comparable statistics may be drawn from the labour force survey. This is important to put the study in proper context.

The main contribution of the paper as its authors have claimed is that it has determined how the decision about women's participation in labour market is taken.

Here several issues are important. First, in the PIHS a question was asked from all women in productive age that who takes the decision about their labour force participation. A three-category answer of this question is used as the dependent variable in multinomial logit model. But the problem is that the question was administered to all women irrespective of their activity status. It is simply a perception of women. In this type of question it is probably assumed that in each household there is an issue of female participation in the labour market. To make analysis more meaningful it is suggested that only those women may be selected who were economically active to determine precisely how the decision took place.

Second, although a women can enter in the labour market for a short period, it can be a life long phenomenon. Employment decision is not like the decisions about movement of women outside the household e.g. going out alone for shopping or visiting alone the hospital for treatment of sick children. This decision is unlikely to be made in a vacuum. It also reflects from the analysis; for example, results of the study do not show any real difference between the decision taken alone or taken with the consultation of others (husband and head of households).

Third, the question on decision-making is really not directly related to female labour force participation. The question, as the paper has pointed out, is about the paid employment. But in female labour force only a small percentage is in paid employment, about one-fifth are unemployed and more than half are unpaid family helpers. If the paper is concerned only with 'paid employees' (or wage employment), it may be analysed more systematically.

Authors have not properly defined the three labour market states: employed, unemployed and not in the labour force. The first two (employed and unemployed) comprised of labour force. Can unemployment rate be computed from the PIHS data set? Authors have wrongly interpreted women not seeking work as unemployed. One reason of female inactivity, domestic work is explained as employed in unpaid domestic activities. It is wrong. In short, authors should clearly show whether labour force participation can be estimated from the PIHS data.

My suggestions are as follows: (1) three labour market states employed, unemployed and not in the labour force—may clearly be defined; (2) labour force participation rates as reported in the PIHS may be compared with labour force survey rates across the comparable age groups; and (3) decision-making variable on which multinomial logit model is built may be used as an explanatory variable in the probit model. It means multinomial logit model may be dropped from the analysis.

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