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## **PARTICIPATION OF MARRIED WOMEN IN ECONOMIC ACTIVITIES IN RURAL PUNJAB**

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### **ABSTRACT**

Using probit model on 3421 observations obtained from The Pakistan Integrated Household Survey (PIHS) 1998-99 the paper identifies the factors that are likely to influence the participation decision of married women living in rural Punjab. It is found that age of women, and husbands working in agriculture sector have significant positive effect on the participation of rural women in economic activities. Household percapita income, women education, her migration status, husbands' literacy level and his age have strong negative effect. No significant effect of joint family system, number of children, and the female being head of the household have been found.

### **1. Introduction**

The incidence of women participation in economic activities is very low in Pakistan. Female participation rate was only 14 percent of the total labor force according to the *Labor Force Survey, 1999-2000*.<sup>1</sup> Average annual growth rate of female labor force participation has increased slightly in Pakistan from 4 percent in 1980-90 to 5.1 percent during 1995-98.<sup>2</sup> However this rate is still very low as compared to other South Asian countries - 42 percent in Bangladesh, 41 percent in Nepal, 32 percent in India and Bhutan, and 37 percent in Sri Lanka (World Bank 2002).

On the basis of estimated population of 149 million for the mid - year 2003, about 69 percent of total labor force lives in rural areas while 31 percent in urban areas. Intercomparison of rural and urban participation rates reveals that labour force participation rates (both for males and females) are higher in rural areas as compared to urban areas (Economic Survey of Pakistan 2002-03). This is so because our economy is mainly agrarian and the agriculture is mostly a family profession. Agriculture is an important source earning for the inhabitants of South Asian countries. Therefore women participation in agriculture is extensive both in terms of labor input and farm management.<sup>3</sup> The already heavy workload of women in agriculture is increasing as women become responsible to a greater degree for agriculture production in addition to household work. Rural women participate in crop, livestock and off farm activities.

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<sup>1</sup> According to Human Development in South Asia (2000), women labor force participation rate (both formal and informal) is 28 percent.

<sup>2</sup> For detail see Human Developments in South Asia 2000: The Gender Question.

<sup>3</sup> According to Human Development in South Asia (2000), economically active women in agriculture are 93.7 percent in Nepal, 78 percent in India, 41.7 percent in Bangladesh and 69.4 percent in Pakistan.

The present paper attempts to identify the household characteristics that lead to participation of married women living in rural Punjab in economic activities.<sup>4</sup> There are a variety of socioeconomic constraints that hinder women particularly married women to participate in economic activities. For example, they have to look after different household and child chores. Their decision about participation in economic activities has also been predominantly influenced by husbands' characteristics.<sup>5</sup>

This paper presents an empirical analysis of participation of married women in economic activities (hereafter PMWEA) using nonlinear maximum likelihood probability (probit) function. The data are taken from The Pakistan Integrated Household Survey (PIHS) 1998-99.

The paper divides into four sections. First section presents introduction, second describes the relevant literature. Data source and methodology are discussed in the third section while the results are presented in the fourth section. The paper is ended by section fifth which provides some concluding remarks and policy implications.

## **2. Literature Review**

Various studies have been carried out to analyze the labor force participation both in and outside of Pakistan. This section reviews the theoretical as well as empirical studies on labor force participation. Following the traditional theory of utility maximization, Becker (1965) developed a theoretical model of time allocation. Time is used as an additional commodity in the utility maximization process. The study assumes that the households are producers as well as consumers. Time is an important input to produce commodities. The effect of changes in earning, other income, goods prices and the productivity of working and consumption time on the allocation of time and commodity set produced have been analyzed.

Similarly Berndt (1990) overviewed some theoretical issues underlying labor force participation and labor supply decisions of individuals and households. The individual is assumed to allocate time to market and to non-marketable activities (typically leisure). Utility is maximized by choosing combination of goods and leisure hours subject to time and income constraints. The study found that increase in wage rate other things (e. g. non labor income, preferences and prices) being the same will increase the hours of market work<sup>b</sup> while increase in non labor income will cause an increase in leisure and consumption of goods.

Studying the productive activities of rural women Ibrah (1993) showed that women participate substantially in activities that are geared directly or indirectly towards productive utilities of some kind. These utilities are both income generating and expenditure saving. Rural women are extensively involved in many agricultural and livestock rearing operations, processing of dairy products, poultry and handicrafts. Despite these productive activities, they also perform household chores. Institution of purdah and segregation of sex, which confine

<sup>4</sup> Participation = 1 if an individual is engaged in economic activities for at least one hour during reference period (whether paid or unpaid or profit or family gain, in formal or informal sector), excluding housekeeping or household chores, and 0 otherwise (Labour Force Survey of Pakistan 2001-02).

<sup>5</sup> See Shah (1986) for detail.

<sup>6</sup> Market work represents the time spent by individual in the market for pay or profit.

women and their activities to the private domains, act as effective cultural device in creating hindrance to women productive roles.

Likewise Chaudhry and Khan (1987) found that the activity rates of rural women depend to a large extent on the social status of the household concerned. Landlessness and land ownership are generally indicative of the poverty and richness, respectively of a household. Household incomes are inversely related to women activity rates. In recent years, the increased mechanization of agriculture in Pakistan has also tended to contribute to a decline in rural women participation rates.

In rural areas, women are involved in a variety of agricultural activities for a long time, such as land preparation, seeding, collecting farmyard manure, weeding and harvesting. Women also undertake the responsibility of cleaning, drying, and storage of grains. This increases their workload after the harvesting operations. Taking care of livestock is, by and large, women responsibility. They collect fodder, clean sheds and process animal products (Khan and Bilquees 1976; Ahmad, Asghar and Khan 1993; and Sarwar and Saleem 1993).

Discussing the same issue, Gondal (2003) found that economic participation of rural women in Pakistan has been influenced by different factors. It has been found that younger rural women are less likely to get involved in economic activities. The probability of women involvement in earning activity also declines with the migration of married women from one place to another. Similarly nuclear family system and presence of small children have strong negative association with participation of women in economic activities. Husbands' literacy level, husbands' age and household annual income are likely to affect the participation of married women in economic activities negatively. However the probability of participation of rural women in economic activities in Pakistan is higher in large families. Also they are more likely to involve in economic activities if their husbands belong to agricultural sector.

### 3. Data and Methodology

The paper uses micro level data from the nation wide *PIHS* conducted in 1998-99 by the Federal Bureau of Statistics, Government of Pakistan in order to ascertain the factors that impel women to take part in economic activities. In this survey 114996 individual from 16305 households stratified on the basis of both on rural and urban backgrounds and by four provinces and Azad Jammu and Kashmir, Fana and Fata were enumerated for data collection. The *PIHS* records information on socio-economic, human capital and demographic conditions through questionnaire survey. To determine the situational and physiological reasons which influence married women to participate in economic activities, women aged 15-60 years were selected for analysis from the entire sample. Since this paper concentrates only on the sample of married women in rural areas of Punjab, the sample size consists of 3421 married women living in rural Punjab. Among them 1021 were involved, while 2400 were not involved in any kind of economic activity. The dependent and independent variables used in this empirical analysis are defined in Table 1, while their summary statistics are provided in Table 2.

It is convenient to describe the explanatory variables into different groups. Explanatory variables are the household level factors that are likely to affect women participation in economic activities. First group of explanatory variables that have been used in the study are

the women characteristics including the age of women in years, dummies for primary and higher level of education and migratory status of women. Second group of variables are husband's characteristics, which include husband's age in years, a dummy variable for husband literacy, and a dummy variable if husband belongs to agriculture sector. Third group of variables are household characteristics that might play critical role in the participation of rural women in the economic activities. These include whether the women is the head of the household, number of children and family type (joint or nuclear). Fourth type of variable is the financial status of the household where household economic status is explained by the percapita income of the house.

To examine the probability of economic participation of married women in rural Punjab in relation to various socioeconomic and demographic factors, the model to be estimated is:  $PMWEA = f(AGE, PRIMARY, ALLHIGHER, MIGSTATUS, FTYPE, NCHILD, FHEAD, HLITERACY, HAGE, AGRICULTURE, PCINCOME)$  (1)

Where  $PMWEA$  is dichotomous dependent variable. It is equal to 1 if a woman participates in economic activity and equal to zero if she does not. The detailed description of dependent and explanatory variables is given in Table 1.

**Table 1. Definition of Variables.**

Variables	Description
<b>Dependent Variables</b>	
$PMWEA$	= 1 if the rural women either currently involved in economic activity for pay, profit or have worked in farms or shops, and 0 otherwise. = 0 if the rural women are not either currently involved in economic activity for pay, profit or have worked in farms or shops, and 0 otherwise
$PMWEA$	= 1 if the rural women either currently involved in economic activity for pay, profit or have worked in farms or shops, and 0 otherwise
<b>Explanatory Variables</b>	
<b>Women Characteristics</b>	
$FAGE$	Woman's age
$FAGESEQ$	Woman's age square
$ILLITERATE$	= 1 if the woman has not acquired formal education and 0 otherwise.
$PRIMARY$	= 1 if woman has primary education, 0 otherwise
$ALLHIGHER$	= 1 if woman has higher than primary level education, 0 otherwise
$MIGSTATUS$	= 1 if woman is migrant, 0 otherwise
<b>Husbands Characteristics</b>	
$HUSLITRCY$	= 1 if husband is literate, 0 otherwise
$HUSAGE$	Husbands' age
$AGRICULTURE$	= 1 if husband belongs to agriculture, 0 otherwise
<b>Household Characteristics</b>	
$FTYPE$	= 1 if woman lives in joint family, 0 otherwise
$NCHILD$	Number of children
$FHEAD$	= 1 if woman is head of the household, 0 otherwise
<b>Household Economic Status</b>	
$PCINCOME$	Household percapita income
$N$	Sample size

**Table 2. Summary Statistics of Selected Sample for Rural Punjab (N=3421) (Sample Means and Standard Deviations).**

Explanatory Variables	PMWEAI	PMWEAO
<b>Women Characteristics</b>	38.389	39.366
<i>FAGE</i>	(11.742)	(14.166)
<i>FAGESEQ</i>	1611.486	1750.290
	(992.602)	(1237.217)
<i>PRIMARY</i>	0.015	0.020
	(0.122)	(0.138)
<i>ALLHIGHER</i>	0.006	0.015
	(0.075)	(0.123)
<i>MIGSTATUS</i>	0.430	0.015
	(0.495)	(0.123)
<b>Husbands Characteristics</b>	0.371	0.466
<i>HUSLITRCY</i>		
	(0.483)	(0.499)
<i>HUSAGE</i>	43.813	45.286
	(13.441)	(15.547)
<i>AGRICULTURE</i>	0.695	0.585
	(0.461)	(0.493)
<b>Household Characteristics</b>	0.464	0.508
<i>FTYPE</i>		
	(0.499)	(0.500)
<i>NCHILD</i>	0.933	0.880
	(1.052)	(1.066)
<i>FHEAD</i>	0.0009	0.0004
	(0.031)	(0.020)
<b>Household Economic Status</b>	3362.352	4095.974
<i>PCINCOME</i>		
	(5171.927)	(5013.506)
N	1021	2400

Notes: numbers in parenthesis are standard deviations.

**Normal Probability (Probit) Model**

The probit model emerges from the normal cumulative distribution function.<sup>6</sup> Suppose  $y_i^*$ , the ability to participate in the economic activity, is unobservable and it depends on a set of observed factors  $X_i$ . That is

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

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

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

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

$$P_i = \Pr(Y = 1) = \Pr(y_i^* \leq Y) = F(\beta X_i) = \int_{-\infty}^{\beta X_i} f(z) dz \quad (3)$$

where  $f(z)$  represents density function,  $\bar{z}$  is normally distributed with 0 mean and unit variance and  $P_i$  is the probability that a person will participate in the labor market.

**4. Empirical Results**

The results of probit model are presented in Table 3. Three sets of numbers are reported in this table, which are probability derivatives (i.e. numbers in bold) at the mean of explanatory variables, estimated parameters and their asymptotic t-statistics. The probability derivatives measure the change in probability of *PMWEA* on the account of one unit change in a given explanatory variable after holding all the remaining variables as constant at their mean.

Regression results indicate that women age positively affect the probability of their participation in economic activity. Increase of one-year in the women age is expected to increase their participation in the economic activity by about 3 percentage point in rural Punjab. This shows that younger married women are less likely to participate in earning activities.

The results show that women's education is inversely related to their participation in economic activities. Primary and higher level education is likely to reduce the married women participation in economic activities by about 2 percent and 14 percent respectively. This is mainly due to the fact that most of the employment opportunities in rural areas are available at fields where educated women are usually reluctant to take part. In other words, there are not more formal employment opportunities available for educated women in rural areas of Punjab. However the results are not statistically significant in the case of primary level education.

<sup>6</sup> See for example Berndt (1991), and Gujratai (1995).

Similarly migration has negative and significant association with *PMWEA*. This reflects that non-migrated women in rural Punjab have higher probability to participate in economic activities. This also explains that rural women mostly migrate due to marriage.

It has also been observed that women living in joint families have 0.4 percent lower probability to participate in economic activities. However the coefficient of this variable is insignificant. There are two competing effects in this respect. One is that in joint family system the pressure of domestic work is high due to presence of more members that does not allow married women to participate in economic activity. Second effect results because the joint family system is also considered to be large and therefore the economic pressure is high in these families. As a result the married women have to take part in economic activities besides their husbands. These two types of effects compensate each other and the resulting affect is negative but insignificant. The results show that one additional women belonging to joint family is likely to reduce their participation of economic activity by about 0.04 percentage points.

When the number of children, who aged 0-5, increase by one, women are 0.04 percent less likely to participate. However the regression coefficient of this variable is insignificant. Again there are two types of competing effects. One is that the presence of small children does not allow married women to participate in economic activity. Second effect is that women have to take part in economic activities along with their husbands in order to meet the needs of their children. These two effects cancel each other and the overall affect is negative but insignificant.

Probability of women participation in economic activities in rural areas of Punjab is 35 percent higher in women headed households but the result is statistically insignificant. Generally there are two types of effects if woman is the head of household. Women head is likely to have good division of women labor in the household. She allows some energetic and more productive women to go outside and get involved in some kind of economic activities to financially support the household and asks other women to perform the household chores. As a result the regression coefficient of *FHEAD* is although positive but insignificant.

The results indicate that the probability of *PMWEA* is likely to be inversely associated with literacy level of husband. Since the literate and educated husbands are likely to earn more income, the economic status of the family is high and women economic participation is therefore low. Thus husband literacy is likely to reduce the



**Table 3. Probit Estimates for the Economic Participation of Currently Married Women in Rural Punjab (N=3421).**

<b>Explanatory Variable</b>	<b>Coefficients</b>	<b>T-statistics</b>	<b>Derivatives</b>
<i>INTERCEPT</i>	-1.551	(-6.764)**	<b>-0.510</b>
<b>Women Characteristics</b>			
<i>FAGE</i>	0.078	(6.932)**	<b>0.026</b>
<i>FAGESEQ</i>	-0.0009	(-7.068)**	<b>-0.0003</b>
<i>PRIMARY</i>	-0.079	(-0.455)	<b>-0.026</b>
<i>ALLHIGHER</i>	-0.423	(-1.740)*	<b>-0.139</b>
<i>MIGSTATUS</i>	-0.218	(-4.847)**	<b>-0.072</b>
<b>Husband Characteristics</b>			
<i>HUSLITRCY</i>	-0.224	(-4.708)**	<b>-0.074</b>
<i>HUSAGE</i>	-0.009	(-2.594)**	<b>-0.003</b>
<i>AGRICULTURE</i>	0.168	(3.387)**	<b>0.055</b>
<b>Household Characteristics</b>			
<i>FTYPE</i>	-0.013	(-0.275)	<b>-0.004</b>
<i>NCHILD</i>	-0.013	(-0.513)	<b>-0.004</b>
<i>FHEAD</i>	1.091	(1.209)	<b>0.359</b>
<b>Household Economic Status</b>			
<i>PCINCOME</i>	-0.856	(-1.796)*	<b>-0.000028</b>
N	3421		
Log Likelihood	-2122.81		
R2	0.043738		

Note: The dependent variable is set equal to one for married women who participate in economic activity and zero otherwise. The statistics significant at 5% and 10% levels are indicated by \* and \*\* respectively.

probability of women involvement in economic activities by 7 percentage points in rural areas of Punjab. Likewise, *HAGE* is negatively and significantly correlated with women earning work. This implies that women decision about their participation in economic activities will decline with the increase in the age of the husband. Similarly the rural women in Punjab have 5 percent high probability of participation in economic activities if their husbands belong to agriculture sector as compared to those whose husbands are involved in non-agricultural activities.

An inverse relationship between household economic status and women participation in economic activity is generally observed. Rise in household income exerts a downward pressure on *PMWEA*. The inverse effect of income on *PMWEA* is though strong the magnitude of this effect is rather small. For example, if household income increases by 10 million rupees, the probability of *PMWEA* reduces by about 28 percentage points. This implies that rural women belonging to rich families are less likely to take part in economic activities as compared to those belonging to poor families. Various studies found that female's decision to participate in the labor market is significantly determined by household income.'

## 5. Conclusion and Policy Implication

This paper has shown a variety of factor, which influences the participation in economic activities of married women living in rural Punjab. It has been found that young married women are less likely to get involved in economic activities. The probability of women involvement in economic activity also declines with the migration of married women from one place to another. Married women having small children of 0 to 5 years of age and living in joint families are less likely to participate in economic activities. Similarly, husbands' literacy level, husbands' age and household annual income have strong negative relationship with *PMWEA*. However, married women in rural Punjab are more likely to get involve in economic activities if their husbands belong to agricultural sector.

On the whole it has been found that married women who are older, less educated, belonging to poor families and whose husbands works in agriculture sector are more likely to participate in economic activities. In contrast, married women who are younger, better educated, whose husbands are educated and belong to better off families have lower probability of participation in economic activities in rural Punjab.

Government should intervene in the rural labor market to take appropriate measures to create better working conditions and to increase economic opportunities particularly in agricultural sector for rural women in Punjab. The government should also ensure the provision of family planning and childcare facilities to increase the women participation in economic activities.

7 See for example Hafeez and Ahmad (2002); Chaudhry and Khan (1987); Masood (1988); Alderman and Chishti (1989); Masood, (1988) and Kozal and Alderman (1990).

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## APPENDIX

Table 1. Labour Force Participation Rates by Area and Sex.

		<b>Both sexes</b>	<b>Men</b>	<b>Women</b>
1990-91	Total	43.2	71.3	12.8
	Rural	45.2	73.6	14.8
	Urban	39.0	66.6	8.6
1991-92	Total	42.9	70.3	14.0
	Rural	45.3	72.5	16.7
	Urban	37.9	65.5	8.0
1992-93	Total	42.4	69.2	13.2
	Rural	44.6	71.3	15.9
	Urban	37.5	64.9	7.3
1993-94	Total	42.0	69.1	13.3
	Rural	44.2	71.0	16.0
	Urban	37.0	64.7	7.2
1994-95	Total	41.3	69.1	11.4
	Rural	43.1	71.3	13.3
	Urban	37.0	64.3	7.0
1996-97	Total	43.0	70.0	13.6
	Rural	45.1	71.8	16.3
	Urban	38.9	66.5	8.4
1997-98	Total	43.3	70.5	13.9
	Rural	46.4	73.4	17.4
	Urban	37.7	65.2	7.4
1999-2000	Total	42.8	70.4	13.7
	Rural	45.1	73.1	16.1
	Urban	38.1	65	8.8

Source: Various Labour Force Surveys 1990-2000.