URL: http://dx.doi.org/10.31703/ger.2021(VI-III).02 **DOI:** 10.31703/ger.2021(VI-III).02
p-ISSN: 2521-2974 **e-ISSN:** 2707-0093 **L-ISSN:** 2521-2974
Citation: Bibi, T., Amin, A., & Haq, J. u. (2021). Women Status In Labour Market of Khyber Pakhtunkhwa. *Global Economics Review*, *VI*(III), 12-21. https://doi.org/10.31703/ger.2021(VI-III).02

Women Status in Labour Market of Khyber Pakhtunkhwa

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Abstract *This study analyses the woman's status labour market of Khyber Pakhtunkhwa. Four working states: self-employed, paid employees, and unpaid family helpers were investigated. Data were collected about individuals and household characteristics of women aged between (15-60) years from the Pakistan Social and Living Standard Measurement Survey (PSLM, 2014-15). The estimated results based on Multinomial Logit (MNL) suggest a positive and significant impact of women's age on all working categories in the labour market. The woman who owns a house, or the married woman, with multiple children or having a combined family system, or the residents of the countryside have less likelihood to take part in paid works. Participation in paid works decreases with the increase in the number of children, whereas participation in self-employment increases with the increase in the number of children. The probability of female participation in all four working states increases with the increase in the number of working individuals in the family. Whereas, probability of women's participation in the labor market decrease with the Joint family system, house owning, marriage, or higher household income.*

Pages: 12 – 21
Vol. VI, **No.** III (Summer 2021)
Key Words:
Labour Market, Women Status, Labor Force Participation, Multinomial Model
JEL Classification:

Introduction

The labour market has a key role in the macroeconomy, and that is because of its forward and backward interconnections. The forward linkage with the labour market expansion develops those sectors that utilize labour and generate demand for labour. The growth of the labour market promoting all those sectors of labour supply, i.e. education, skill and training, and creating opportunities for employing both the skilled and unskilled individuals is associated with backward linkage. Similarly, the output level, the standard of living, production and average income increase, which is is essential for the economic development of a country. For the last more than thirty years, women labour force participation has been witnessed to significantly increase all over the world. In advanced countries, an increase of 4% to 70% in the female's active labour force has been comprehended (Hotchkiss, 2006). Following the SPDC Annual Report (2008), Pakistan in the years 2004-2007 witnessed high growth rates of women

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labor force participation; still at lowest level. The participation rate estimated was 49 percent in 1971-72 and was 52.5 percent in 2007-08.

The participation rate of females increased from 9 to 22 percent in the time period from 1971-72 to 2007-08. Almost 78 percent of the total females are economically inactive in the labour force, in contrast to seventeen percent of males that are inactive. The data of key indicators for labour market studied from 1980 to 2007 for sixteen selected countries has shown the net growth of female participation rate in the work force. The rate of participation increased from 5.5% to 16% in the time period of 1980 to 2000 and up to 20.8% in the year 2007. The women input rate in Thailand was found to be 69.3%, in the Philippines 70.6 %, in China 49.8%, and in Korea 49.3% in the year 2007, in the workforce (ILO, 2014).

The education level, skill, and job accessibility are some factors that may affect a female's decision to work; with people's demographic characteristics who live in a society, socio-economic and cultural factors play a major role in determining the female's labour-force participation (FLFP). Mincer 1965 has attracted many researchers to study female's labour force participation in the last three decades. Many studies, along with the application of econometric techniques, took place with the developments in labour supply theory. The women time distribution and family production model were contributed to the labour supply theory by Becker (1965). The theoretical basis to the decision making process of the household for women labour supply by using a collective household model was shown by Chiappori (1992). Gronau (1973) and Heckman (1979) contributed to the empirical studies and discussed the importance of the appropriate estimation method. Sutradhar et al.; (2017) studied the demographic and socio-economic effect on the participation of married women in the employment marketplace of rural areas of Bangladesh. The logistic regression was used and found that women as a supervising figure of the family, age, education level of female and the small family size, poverty status, female with an unemployed husband and residing in rural area have significantly positive consequences on participation in the employment sector. However, the education level of the husband and owning of a house negatively affect the married female's labour supply. McFadden (1974) assessed a significant effect of demographic factors, traditional and social norms and structure of the household on female labour supply. The presence of elders and children has a positive effect on the participation of females in labour force. Yakubu (2010); Esfahani and Shajar (2012) used the labour force supply (LFS) quarter based data for the year 2008 and studied the factors of female decision making to work in the labor market in South Africa. The educated and married women, in contrast to uneducated, widowed or unmarried women, were found to involve more in the labour marketplace. The human capital theory explains that education is an investment, and the higher education is searching for employment is increased (Finegan, 1962). Faridi et al.;(2009) studied the determinants of FLFP and assessed that father education level adversely affect while husband's education and own education of female has a significant effect on their labour supply. Data of 164 women between 15-64 years of age in Bahawalpur district for the year 2007-08 was studied and found that education has positive consequences on female involvement in the workforce. Ejaz (2007; 2011) for 2004-05 used "Pakistan Social and living Standard Measurement

survey (PSLM)" to analyze factors determining women's participation in the employment sector of Pakistan and witnessed education level, marital status, small family size and owing agriculture land positively and significantly affect female labour supply. Hafeez and Ahmad (2002, 2007) studied the demographic and socio-economic factors of educated wedded women's participation in the labor market of Mundi Bahaudin district for years 1998-99 and witnessed that education plays a strong role in FLFP. Khadim and Waqar (2013) studied the educated woman's labour supply in the formal sector by using binary logistic regression. Data of PSLM(2007-08) was used about the individual and household characteristics of women aged (21-60) years for this analysis. The findings reveal that secondary and tertiary education has a significant positive relationship with the participation of women in the labor market of the informal sector. They suggest that higher education like MPhil/PhD or professional/postgraduate degree has a great influence on participation in the formal sector. Females who are married, have a nuclear family system and belong to urban locality participate more, while the likelihood of participating in the formal sector decrease with the female's age, presence of boys in the household and woman as household head. The women, in fact, have made remarkable achievements in different professions and occupations. They have a dominant role in the formal sector of the economy in developed countries, however, in developing countries their presence is most often felt in the informal sector. Although there are a number of push and pull economic factors that expand and contract the economy. In Pakistan, various studies conducted for female labour market participation or no participation. This study aims to categorize individuals into working and not working, to assess socio-economic determinants of women employment status in Khyber Pakhtunkhwa and to analyze characteristics related to individual and the to household that encourage or discourage women labour supply.

Materials and Methods

Data

The micro-level data of "the Pakistan Social and Living Measurement (PSLM)" 2014-15 supervised by the "Pakistan Bureau of Statistics (PBS)" is used for this study. The important information about 25,999 households from 25 districts of Khyber Pakhtunkhua-Pakistan.

Model Specification

In order to test hypothesis multinomial logit model was used. The variables description is given as: Women Employment Status = Dependent variable is female's status of employment in labour market comprising working and not working females. Employment status= 1 if the working female and if 0 for non-working female. The working categories are coded as Y_i: 0= not working and 1= if the self employed female in non agri, 2 = if the female is paid employed, 3 = if the self-employed female in agriculture sector, 4= if female is unpaid family helper. The family size, household monthly earning, age, marital status, area, and the education of family head are the control variables.

Greene (1992): the probability of women involvement in the working states is studied as a function of the observed characteristics by using multinomial logit model:

$$\text{Prob}\,(Y = j) = \frac{e\alpha^{j'x}}{\sum_{k=0} e\alpha^{k'x}} = 1,2,3, \ldots, j$$

The final equation is as follows:

$$Y_{it} = \alpha_0 + \alpha_1(age)_i + \alpha_2(age)_i^2 + \alpha_3(education)_i + \alpha_4(marital\ status)_i + \alpha_5(own\ house)_i + \alpha_6(women\ head)_i + \alpha_7(working\ people)_i + \alpha_8(children)_i + \alpha_9(dependents)_i + \alpha_{10}(coresidence)_i + \alpha_{11}In(hh\ income)_i + \alpha_{12}(hhincome)_i^2 + \alpha_{13}(rural/urban)_i + \varepsilon_i$$

Table 1 explains the explanatory variables. The minimum age in the PSLM for all males and females is zero, and the maximum age is 99 years. However for the current study age range from the minimum to maximum is 15-60 years. The level of education considered for this study is primary, secondary, and higher. The minimum years of schooling completed are 0 or less than one years (Montessori) and (PhD), i.e. 19-years of education are considered the highest level of education. Dummy variable married is considered for marital status, which is 1 if married and 0 if un-married which includes (divorced, widowed and singles). The dummy variable for women head shows value one and zero in the summary figures. The number of dependents in data i-e kids aged below 6 years and elders who are above sixty years of age per household, is 23. Sixteen is the absolute number of working individuals in the family who share one kitchen. The maximum total number of kids aged 6-10 years is 12. The value for respondents who are residents of a rented house is zero, and the woman who owns a home is one, one percent of the respondents possess accommodation. Zero is for the nuclear family systems whereas, for individuals having combined-family systems (i.e., two families, more than four couples in a house, or more who shares a single kitchen) is equivalent to one. The maximum revenue of the participants in a household is 1350000 Rupees, the minimum wage is zero, and 10 is the logarithm of family circle. The zero for least amount and one for highest are shown by the location dummy for rural and non-rural areas.

Table 1. Description of Explanatory Variables

Variables	Description
Age	(15-60) years
Age2	age quadratic
Edu	the completed years of schooling.
Married1 =married and 0= unmarried (widow, divorced or single).	
Women head1 = head of household,0 otherwise.	
Rural/Urban 1 =Urban area and 0= Rural.	
HHedu1= head of the household is educated 0= if not	
Ln(Income)	log of family monthly income
Ln(Income)^2	log of family monthly income squared
Working people	a household number of working individuals
Co-residence	1= joint family, 0 = nuclear
Childrenkids in number aged (6- 10 years)	
Dependents	household dependents in numbers(age<5&>60and not working)
Own House	1 =living in own house 0 = otherwise(rented house, on subsidized rent)

The total number of not-working and working-women aged (15-60) according to the sample is 25999. Approximately 25% of the total sample is the ratio for working

women which is equal to 6349 women out of the total. While the not working women are 19650, about 75% of the total sample women.

Table 2. Women Category-wise Observations

Category	Observations
Not working	19,650
Self employed Non-Agriculture Sector	1,107
Paid Employed	2,417
Self Employed in Agriculture Sector	1,311
Unpaid Family Worker	1,514
Total	25999

Source: Author's calculation based on PSLM 2014-15

Results and Interpretation

Female Participation by Multinomial Logit Results

The determinants of female labour participation in the Khyber Pakhtunkhwa is examined by the logit regression result is presented in the table below;

Table 3. Summary Statistics

Variables	N	Mean	SD.	Min	Max
Age	25,999	1.85	2.59	5	60
Age2	25,999	1173	00.6	25	600
Married	25,999	0.718	0.450	0	1
Location	25,999	0.0909	0.287	0	1
Education	25,999	6.088	0.027	1	6
No.of Working	25,999	1.990	1.823	0	16
No.of children	25,999	4.920	1.485	0	12
No.ofDependents	25,999	8.773	2.179	0	23
Co-residence	25,999	3.586	0.464	0	1
Ln(income)	25,999	0.315	0.772	4.419	10.40
Ln(income)^2	25,999	87.85	13.70	19.53	108.1
Women head	25,999	0.0760	0.265	0	1
Own house	25,999	0.895	0.306	0	1

Source: Author's calculation based on PSLM 2014-15

Table 2 sums up the statistics of all the explanatory variables utilized in the estimation procedures. The stylized facts of Pakistan data are clearly reflected. 25999 is the total count for all observations of women.

Table 4 describes the estimated outcome of the women employment status in Khyber Pakhtunkhwa.

Table 4. Multinomial Logistic Regression Results

Explanatory Variables	Self Employed Non-Agriculture	Paid Employee	Self-employed Agriculture	Unpaid family helper
Age	0.00038	0.0311	0.00111	0.0015***
age2	4.41e-05*	0.000301*	0.000016*	0.0002**
Education	0.0081*	0.02*	0.0035*	0.00182*
Woman head	0.0039*	0.158*	0.0035*	-0.0012*
Married	-0.011	-0.061*	0.0123*	0.0081*
No.of dependents	-0.023*	-0.0377*	-0.0115*	-0.007*
No.of working people	0.0015*	0.017*	0.007*	0.016*
Ln(income)	0.0904*	0.3933*	0.0207*	0.052***
Ln(income2)	-0.0036*	-0.247*	-0.002*	-0.0034**
No.of children	-0.035**	-0.0006*	0.007	-0.0035*
Coresidence	-0.055*	-0.058*	-0.016*	-0.021*
Location	0.0201*	-0.008*	-0.0287*	-0.0085**
Own house	-0.016*	-0.019*	0.011*	0.005
Constant	-16.50**	-27.99***	-6.135	-14.40**
MultinomialLogistic regression Number of obs = 8562				
LR chi2(48) = 2909.03Prob > chi2 = 0.0000				
Log likelihood = -6395.4722 Pseudo R2 = 0.1853				

****, **, * Represent significance level at 10%,5% and 1% respectively.*

This study takes the four working states for women; not-working as the base category and as the dependent variable. It is an established concept among researchers that the grouping of family characteristics, the individual's personal characteristics, and a number of demand-side and supply-side factors form a basis for the decision-making process to participate in any economic activity. The interpretation for the results of involvement in various forms of employment in the workplace market was computed by the marginal effects. (Table 2) shows that 31.8 is the mean value of age for women. As per the results, the probability of participation in all forms of service work increases with the addition of years of age from its mean. Although the likelihood of being not-working in contrast to being an unpaid family worker for women is very low (i.e. being an unpaid family worker for women has a high probability equal to 0.15 percentage points (pp)), their magnitudes are different. Age square is included in determining a non-linear association between the likelihood to participate in any state of employment and age. Results indicate that any increase in the women age-square, the probability of being in the self-employed in non-agriculture was very low (4.41e-05pp) as compared to those who are not part of the workforce. However, the immensity remained very low, and the age-squared had a significantly positive impact on determining the probability of women for labour supply. These findings are in accordance with the literature ((Naqvi et al. (2002), Ejaz (2011)).

As per the study of (Hafeez and Ahmad (2002) Safana et al. (2011) the probability of participation in the labor marketplace has a direct relationship with education, in our analysis, 50% of women are uneducated in the total sample, which refers to the 6 years of education as the lower mean value for them, the results

further indicate that any addition to the years of education from the mean values leads to an increase in the likelihood for women being in a self-employment in the agriculture sector (0.35pp) and in paid employment (2.41pp). The married women in our sample constitute 71%. The likelihood of salaried work for the wedded women was lower than the unmarried in the labour market, i.e. (0.61pp). It means that majority of married females are more likely to work as unpaid family helpers (0.81pp) or of self-employment in the agriculture sector (0.123pp). The findings of the current study are congruent with the previous studies (Naqvi et al. (2002), Ejaz (2007)). Children between 6 to 10 years of age are considered a strong determinant of women's labour supply. Almost 45% of women had 2 or more children in our analysis. (Bradbury and Katz (2005) suggest that majority of women work in the agriculture sector or are in unpaid jobs as compared to non-working women.

The results further reveal that an increase in standard deviation for the kid's number in the family lower the chance for women to be in a salaried service by (0.089pp)(1), and the voluntary household assistant (with school-going children) has less likelihood to participate as compared to the ones who are not the part of labor state. This demonstrates a consistent result with the previous literature (Naqvi et al. (2002), Bradbury and Katz (2005)), which states that the number of children has negative relation with the female labour supply. In this research, the dependents include all infants of age (less than 5 years and elders greater than 60 years) in the household. Another study explains the negative relation of a number of dependents and women participation in labour market (Faridi and Basit (2011), Faridi et al. (2009)). Study findings suggest that the likelihood be (paid employment, unpaid and self-employed) lowers with an increase in the standard deviation in the number of dependents in a family. "Co-residence" means "To live in a joint-family system with parents or with in-laws, consisting two or more families who share one kitchen". In our analysis, 31% of the women are living in a combined family system. Results show that women living with joint families have a ghost of a chance to be in any of the state of employment comparative to non-working women. The monthly income of the household is another strong determinant that affects the women supply to the labour market. Results show that the logarithm of the monthly household income has a significantly positive relationship with the women's decision to work in the labour market. This suggests that the probability of women employment increases with an increase in family monthly earnings (log-level). Conversely, the lower probability for women participation in any employment category can be the outcome of the increase in its quadratic term.

The marginal effects of household (logarithm income) show that the probability of females being in any labour market state increases with a one percent increase in monthly family income, with a falling rate comparative to not-work. Although probability of being in paid employment increases with a high magnitude of 3.43(pp), it reveals that household monthly earnings have a significant positive relation with women decided to work; this is consistent with the findings of Ejaz (2011),Esfahani (2012)).

The probability of being a volunteer household-helper, who does not get paid, remains high by 0.5 pp and self-employment in the agriculture sector by 1.1pp. Whereas the female's possession of a home employs 1.9 pp less likely to be in

a paid-work relative to not being part of a labor market.

The results suggest that number of working people also have an influence on the probability of women's participation in labor market. In a household, the rise in the number of working people by one standard deviation, Females are more likely to take part in self-employment non-agriculture sector, paid employee, free household work and self-employment in agriculture-sector by the magnitude of 0.15,1.7,1.6, 0.7 (pp) respectively, relative to not work. The results of Naqvi et al. (2002) and Ejaz (2007)'s work support these findings.

Females as the head of the home are more likely to participate in all working states except unpaid family work. This shows that being a supervising figure in the house, women do not like to work with no any financial-reward or voluntarily as un-paid household workers/helpers. However, in order to meet large family expenses or to offer a superior education to children, some married women as leaders of the home may decide to work in labour market. These findings adhere to the previous studies of (Ejaz (2007), Azid et al. (2010)); which established a positive relationship between women heads of the household and the probabilities of being in employment. To check the role of urban/rural impact on women participation, their dummy was utilized as a regional control. Women belonging to city areas had 0.8 (pp) fewer chances to be in paid employment. Conclusively, these findings suggest that women who are married, is head of the house, have 2 or more children, lives in a combined family system or belongs to non-rural areas has a lower probability of being in remunerative employment.

Conclusions

This study identified and analyzed the major determinants of women's participation in the labor marketplace of Khyber Pakhtunkhwa. Data analyzed for women (aged 15-60) was taken from *PSLM Survey* (2014-15), using the multinomial Logistic regression model. The major findings suggest that for women, attainment of higher education leads to an increased participation rate in the labour market. The probability of participating is higher if a woman is unmarried, has a high household income, owns a house, has a joint family and belongs to a rural locality. The empirical study suggests that family labour supply has a positive relationship with the number of working people in a household. The more the number of kids and dependents, the less will be the likelihood of involvement (in any state of service) of women in the labor marketplace. The research, therefore, discloses that education has a vital role in the women labor supply and the data collected shows that 50% of females are uneducated, so the government should work on women education to enable them to participate in labour force and in the monetary development of the country.

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