November 2021

Determinants of Female Labor Force Participation

Adiqa Qausar Kiani
Economics Department, Federal Urdu University of Arts, Science and Technology, Islamabad, Pakistan

Determinants of Female Labor Force Participation

Dr. Adiqa Kausar Kiani*

There are many factors related to female entering the labor market. For example, household income, household expenditure, education and status of the head of the household (male/ female). The degree of correlation between each variable and female labor force participation rate varies throughout the country. This study focused on the factors due to which women enter in labor market. Tobit model is used for this analysis. It is concluded that education and household expenditures have positive but insignificant impact on the female LF, whereas household income and head of the household has negative impact on FLF. It is suggested that in order to improve the working condition of female labor force government should take necessary action, for example women education etc.

Keywords : Female labor force participation, labor market.

Introduction

It is undeniable that female labor force participation is very low in Pakistan [Zafar (2002-03)]. According to the labor force survey 2005-06 female participation is nearly 20.73% of the total labor force Although the annual growth rate of female labor force participation has been increasing in Pakistan from 14.5 percent in 2001-02 to 15.9 percent in 2003-04, [Economic survey (2003-04)].

The importance of participation of female labor force in socio-economic development cannot be overemphasized. There is a positive relationship between economic development and female labor force participation. This rate is very low in Pakistan because importance was not given to the development of female human capital (Zafar 2002-03). At the household level, household income is the primary determinant for women to enter into the labor market. Household size, household composition and education have positive relationship with the entrance of women in the labor market while high occupational status, highest wage rate of their husbands have negative effects on the participation of women (Hamid. S 1991).

There are a number of factors due to which females take part in the labor market. Most of the women enter the labor market due to weak financial condition of their households. Women economic participation is influenced by many factors such as their age, education and marital status. The employment status of the head of the household, male, no. of male adult, earner and children below 5 years old are also important factors that affect women participation in the labor market. [Naqvi, F.Z. and Lubna (2002)].

The Pakistan labor force participation is estimated on the basis of the Crude Activity Rate[1] (C.A.R.) and the Refined Activity Rate[2] (R.A.R.). According to the labor force survey (2005-2006) the overall labor force participation rate based on C.A.R. is 32.2% out of which 50.73 is male and 13.3 is female and labor force participation rate. It has risen from 30.4% in 2003-2004 to 32.2% in 2005-2006 due to creation of millions of new jobs during this period. In case of female it has risen from 11.2% to 13.3% during this period.

*Assitant Professor Economics Department, Federal Urdu University of Arts, Science and Technology, Islamabad, Pakistan. Email: adiqakiani@fuuastisb.edu.pk Tel: 92-51-9252852, Fax: 92-51-9252855

[1] The crude activity rate is percentage of labor force in total participation.
[2] The Refined Activity Rate (R.A.R.) is percentage of labor force in population of persons of 10 years of age and above.

As for the area and gender the rise in rural area is higher than that in urban area. RAR is 46.0% out of which 72.0% is male and 18.9% is female (Labor Force Survey 2005-06).

Just like Crude Activity Rates, Refined Activity Rates is registered to have a significant increase by 2% whereas in case of female the increase is by 3%. Thus the rates for rural and females post higher growth than that of urban and males. However, male female disparity in this case is wider than observed in Crude activity Rates (Labor Force Survey 2005-06).

The absolute figure of labor force participation in 2003-04 is 45.50 million out of which 8.15 million are females. In 2005-06 it has risen to 50.05 million out of which 10.08 million are females. The volume of labor force expands in all provinces irrespective of area and gender. However, female labor force in urban Baluchistan remains at par probably, due to rising cost of maintaining families in the cities (Labor Force Survey 2005-06).

From 2003-04 to 2005-06 the number of employees increased about 5 million out of which 2 million are females. The increase in employment was due to the creation of 5.82 million new jobs since 2003-04 to December 2005, reflecting the growing pace of economic activity in the country. It is important to note that out of 5.82 million new jobs, 17.8% have been created in rural areas while 22.% have been created in the urban area.

The sectoral share of female in the labor force in agriculture, forestry and fishing is 13.41% which is about 2% higher than in 2003-2004. There has been either a slight increase or no change in employment of all other sectors except community, social and personal services where employment has decreased from 15% in 2003-04 to 14.4% in 2005-06. In case of female, it has decreased by about 2%. Overall unemployment rates decrease from 7.7% in 2003-2004 to 6.2% in 2005-06. Gender disaggregated also reflects the same pattern, women rates (13% vs 9%) outpace men rates (6.6% vs 5.4%). Micro finance facilities focusing on women particularly in rural areas may be a major contributing factor for reduction in female unemployment rate.

Literature Review

Bilquees, F. and Shehnaz Hamid (1989) investigated how lack of awareness adversely affected the return to the female labor force participation. The paper was based on data collected in Rawalpindi city for the project "A Socio Economic Profile of Poor Women in Karachi Abadis" in which they examined that majority of the women working for their income was not a voluntary choice but they were forced to do it .Lack of education limits the employment opportunities for women.

Kazi, S., and B. Raza (1988) examined the social and economic conditions of households headed by women. The findings indicated that the subset of female heads of households comprised of three distinct groups; wives of migrants, divorced, widows, and wives of non-earning husbands. The first group was proved to be relatively well off and employed in white collar jobs, the other two categories widows,divorced and wives of non-earning husbands were the poorest.

Naqvi, F.Z. and Lubna Shahnaz (2003) identified that the households related factors lead to the women participation in their economic activities. The study was based on cross sectional data from Pakistan integrated household survey (1998-1999)by using Probit and Logit models.They viewed that women's age, education, economic status of household , number of children below five years and family structure played an important role in determining the female labor force participation. The result showed that women's age positively influenced the possibility of their involvement in economic activities. Marital status was another important factor affecting decision of women in economic participation. They also examined that women chances of being involved in labor market increased if they came from families living in rural areas.

Hamid S. (1991) examined the determinants of supply of women in the labour market. He analysed that married women are engaged in earning activities rather than unmarried women. He empirically tested that household income is the primary determinant for women to enter in

the labour market. Household size, household composition and education have positive relationship with the entering of women in labor market. Further, he analyzed that husbands having higher status, earning high wage rates put negative impact on the women participation.

Kazi S., etal (1989) discussed women role in informal sector by using survey data of the year 1987 in Karachi city. They suggested that different occupations have different earning, age factor, economic conditions and ethnic background were proved to be important determinants for women labor force participation.

Kazi, S., etal (1991) examined duality of female employment in Pakistan. Socio-economic strata were defined on the basis of access to education and working options variety. They concluded that privileged women in Pakistan were able to enquire university education and took up professional jobs, while women from the poorest strata were pushed into the labor market due to their dire economic necessities.

Azid T., etal (2001) examined female labor force participation in cottage industry. They suggested that in the traditional society, women were working for market activities only if the income of the family had fallen to a very low level. The basic objective of the study was to analyze the behavior of the female workers involved in the business of embroidery. They work on the hypothesis that there is a positive association between hours of female workers and household workers. The data of these workers were collected from the shopkeepers and from the middlemen. By using the OLS techniques the study found the children under five years of age have negative impact on the women labor supply. They conclude that there is a need of time to develop this sector in an organized way.

Chaudhry, M. Ghaffar and Z. Khan (1987) investigated the female labor force participation rates in rural Pakistan and also measured the magnitude and trend of the participation rates of rural females in Pakistan. It was viewed that these rates in Pakistan were low and was argued to be declining. The low or declining participation rates of rural female employee high and rising dependency rates of the population engage in agriculture.

Shahnaz L. and Zainab K. (2002) analyzed to identify household related factors that influence female decision making by using data from the Pakistan Integrated Household Survey (1998-99).By the estimation of Probit model, they identified that marital status, education level, family type and the household per capita income are the main casual factors behind women making their own decisions about the paid employment. They concluded that the level of education they have completed exerts the greatest influence on their decision-making abilities especially if she has received

some form of post graduate study. Similarly the household income and the age of female have positive effects on her decision-making and family type has negative effect on the entering of the female labor force participation.

Kozel V. and Harold Alderman (1990) analyzed that there are strong and systematic factors that explain both men's and women's labor supply decision in urban Pakistan. The basic objective of their study was to explain individual labor supply decisions, whether to work, how intensive at what wage, and in which sector of the economy. The study concluded that labor force participation rises with the increase in expected earning and wage. The rate of participation of female and male in the labor force is different in Pakistan. However, the factors like education and financial condition etc. are the same factors which determine the labor force participation for both men and women.

Methodology

Kozel and Alderman (1990) studied the factors determining work participation and labor supply decision in the urban areas of Pakistan by using OLS regression as well as a Tobit model. Similarly, Rashed, Lodhi and Chisti (1989) investigated different demographic and socio-economic factors of women's labor supply participation behavior in their study for Karachi using Probit model. In this study we have used Tobit model.

Tobit Model

The Tobit Model is an econometric model proposed by James Tobin (1958) to describe

the relationship between a dependent variable Y_i which cannot take negative values and an independent variable (or vector) X_i.

Lambe (2003) defined Tobit model as:

$$Y_i = X_i\beta + u_i$$
$Yi=0$ if
$$X_i\beta + u_i > 0$$
$$X_i\beta + u_i \geq 0$$
$$i = 1, 2, ..., N$$
(1)

Where Y_i is the dependent variable and represents the labor force participation, X_i is a vector of exogenous explanatory variable values, β is a vector of unknown coefficients, u_i is an independently distributed error term assumed to be normal with zero mean constant variance σ^2, and N is the number of observations. Therefore, the Tobit model assumes that there is an underlying stochastic index equal to $(X_i\beta + u_i)$, which is observed only when it is positive, and hence qualifies as an observed, latent variable[3]

The expected value of Y in the Tobit model is:

$$E(Yi/Xi) = \beta F(Zi) + \sigma f(Zi)$$
(2)

Where $Z = X\beta / \sigma$, $F(Z)$ is the unit normal density, and $F(Z)$ is the cumulative normal distributed function.

McDonald and Moffitt (1980) have shown that:

$$E(Y) = F(Z)E(Y^*)$$
(3)

Where $E Y^*$ is the expected value of Y for observations above the limit. Here individual subscriptions are ignored for simplicity. McDonald and Moffitt (1980) have further shown that:

$$\partial EY / \partial Xi = f(Z)\beta i$$
(4)

and

$$\partial EY / \partial X_i = \partial E(Y|Y>0)/ \partial Xi = \beta i[1 - Zf(Z)/F(Z) - f(Z)^2/f(Z)^2]$$
(5)

Where $F(Z) \beta_i$ represent the total effect, while the expression represents the fraction of total effect of a change in X_i on Y due to effect above the limit. The β_i coefficients should be multiplied by this fraction in order to obtain correct effects on Y for observations above the limit.

Estimated Model

The following model is to be estimated in this study.

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + u_i$$
(6)

Y_i = Female labor force participation.
X_1 = Earner female.
X_2 = Earner male.
X_3 = Annual Expenditure per household.
X_4 = Female literacy.
X_5 = Female head.
X_6 = Male head.
X_7 = Annual Income per household.
X_8 = Male literacy.

β_0 = constant and $\beta_1...\beta_8$ are coefficient to be estimated and u_i is a random error, assumed to be normally distributed with zero mean and constant variance.

Data and Variable Construction

In this study most of the were data taken from Labor Force Survey (various issues) and Household Integrated Economic Survey (HIES). We have taken Female labor force participation as a dependent variable and female earner, male earner, annual expenditure per household, female literacy, female head, male head, annual income in millions (per household) and Male literacy as independent variables. We have taken female labor force participation and literacy in percentage form average income per household (rupees), average number of earners per household.

---

[3] Latent Variables, as opposed to observables, are variables that are not directly observed but are rather inferred from other variables that are observed and directly measured

Table 1. Summary of the Variables

Code	Variables	Units of Measurement	Descriptions
Y	Female labor force participation	Percentage	Female labor force participation.
X_1	Earner Female	Percentage	Those females aged 14-49 years who provide the household with material return, in cash or in kind.
X_2	Earner Male	Percentage	They are those persons aged 14-49 years who provide the household with material return, in cash or in kind.
X_3	Annual Expenditure Per Household	Million (rupees)	Household consumption expenditure refers to all money expenditure by household and individual members on goods intended for consumption and expenses on services.
X_4	Female Literacy	Percentage	Those female (14-49 years) who are able to read a newspaper with understanding, to write a simple letter and perform simple sums.
X_5	Head Female	Percentage	If a woman lives alone and makes provision for own food and other essential of living is considered as the head of household. If a group of persons live and eat together, the head of household is that person who is considered as the head by the household members
X_6	Head Male	Percentage	In practice, when husband, wife, married and unmarried children form a single household, the husband is generally reported as the "head".
X_7	Income Per HH	Million (rupees)	Household income is sum of monetary income and income "in kind".
X_8	Male Literacy	Percentage	Those male aged 14-49 years who are able to read a newspaper with understanding, to write a simple letter and perform simple sums.

Table 2. Summary Statistics of Dependent and Independent Variables

Variable	Mean	Standard deviation	Maximum	Minimum
Y	117.5112	12.03546	140.5600	103.7700
X_1	0.399375	0.157415	0.730000	0.220000
X_2	1.594375	0.368691	2.950000	1.400000
X_3	0.071875	0.027379	0.130000	0.030000
X_4	21.73250	9.319378	35.61000	13.75000
X_5	176.4450	38.93770	253.0000	117.1300
X_6	3575.645	1100.005	6720.000	2505.510
X_7	0.685000	0.261432	1.350000	0.380000
X_8	12.35937	6.917781	22.99000	6.090000

Result and Discussion

Normally if the female earners increase, it will increase the female labor force participation. But table 3 in this study shows that females earners during 1991 – 2006 have been fluctuating from year to year. It shows that female earner has negative but significant relationship with dependent variable (FLFP). The female labor force participation has negative results because literacy and encouragement of female participation has increased the participation irrespective of more earning by the male. In case of male results have also been fluctuating from year to year so male earner has positive and significant relationship with female labor force participation.

Table 3 shows that female literacy has positive but insignificant relation with female labor fore

participation. This is due to the fact that educated women not only get easy employment but also permanent and well paid jobs, particularly in the traditional sectors of education and medical.

In this study male literacy has negative effect on female labor force participation but it is insignificant. The reason is that with the increase of literacy the male will get better and more jobs with a obvious result that household income will increase and not much financial support will be needed from the female. Hence the female labor force participation will decrease.

Expenditure per household has a positive effect on female labor force participation but this is because in order to meet more expenditure more income will be needed for which more female labor fore participation will be necessary. However, it shows insignificant. In case the female is head of the household, women are

Table 3. Regression Results Using Tobit
         Model

Dependent Variable	Log FLP
Constant	2.95642 (8.486213)***
Log Earner Female	-0.10781 (-2.01198)**
Log Earner Male	0.105517 (4.819449)***
Log Annual million expenditure	0.295928 (0.636769)
Log Female literacy	0.109259 (0.632824)
Log Head Female	-0.15955 (-5.1251)***
Log Head Male	-0.09093 (-1.42378)*
Log Income in Million	0.39958 (0.730455)
Log Male Literacy	-0.06154 (-0.42369)
Adjusted R^2	0.961257
Mean Dependent Variable	2.06875

*** Significant at 1% level. ** Significant at 5% level.
* Significant at 10% level
Values in parenthesis are z-values

Figure 1. Trend of Females Labor Force
         Participation (%) during 1990-
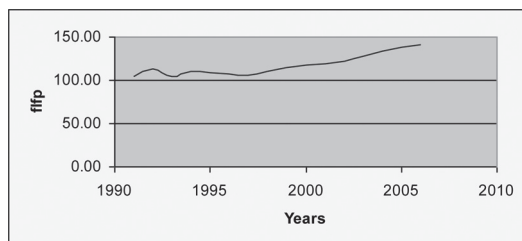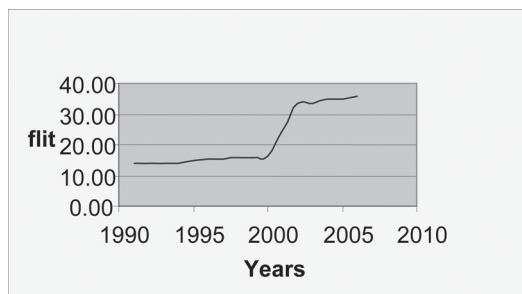   2006.

Figure 2. Literacy Rate (%) during 1990-
         2006.

more likely to participate in economic activities. However, our results contradict this assumption and shows negative and insignificant results.

In case the male is head of the household, the result is negative and there is an insignificant relationship with female labor force participation. This is mainly due to the traditional attitude against the female labor force participation in the country. Financial difficulty is the main reason which usually causes a negative relationship with female labor force participation. Higher economic needs drive more women to be involved in economic activities whereas in household with higher incomes women are less likely to participate in economic activities. Our results agree with this assumption, as our results are negative and insignificant.

Figure 1 shows the trend of female labor force participation rate during 1990-2006. There is continuous and gradual increase in female labor force participation, during the study period.

Figure 2 shows the trend of female literacy rate during 1990-2006. In 1990s, female literacy rate gives constant pattern. During 2000-2001, there is a sudden increase of literacy rate. After 2002, there is no change in the literacy rates of females.

Comparing Figure 1 and Figure 2, it explains that with an increase in literacy rate, there is also an increase in participation of female labor force.

Conclusion

This study is undertaken to examine the factors in which women are forced to enter into the labor market. Our results show that everything remain constant, the chances of a woman to be a paid and productive member of the society increase with education and improves significantly the better educated the woman is. Thus, the focus on female's education is not only important for the betterment of working female, but also an investment to achieve higher GDP. Further, if the head of the household is illiterate and low paid, women are forced to seek employment to supplement their family incomes. For this reason, women and their families invest more in human capital, which can be beneficial and would improve the standard of living.

But even today in most of the families, women are not allowed to work because their husbands and/or fathers do not want them to work outside their houses. This indicates that

to increase women's participation in economic activities a lot of work is needed to be done to change the mindset of husbands/fathers and other male household members.

In our analysis, Tobit model is estimated taking female labor force as a dependent variable and female earner, male earner, annual expenditure per household, female literacy, female head, male head, annual income in millions (per household) and male literacy are used as independent variables. All variables have been taken in log form for estimation purposes. In Table 3 the results are shown in which female earner is negative but significantly related while, male earner showed positive and significant impact on female labor force participation.

Expenditure (per household), annual income (per household) and female literacy show positive but insignificant relation with dependent variable while male literacy has negative effect on female labor force participation though insignificant.

Female head has shown negative but significant result while male head has also shown negative and significant relationship with an increase of female labor force participation. On the basis of our results, we can conclude that with the passage of time, female labor force is increasing in the labor market and so is their contribution towards their family.

In addition to this, standard of living with both earners (male and female) has also proved, incentives to the female earners though not very enough but encouraging. In this modern age, it is already proved that if both members of family (female head and male head) do have a job, they will better handle their financial problems, can improve their standard of living, standard of education of their children etc.

The main problem with working women who have children is who should look after their children during their working hours. In such case generally they leave their children in Day Care Centers. The government also established few Day Care Centers adjacent to educational institutions, medical centers and labor colonies, though not very good in standard. But these centers are not sufficient to meet the demand of the working women. Government should therefore, establish more Day Care Centers with all requirements (fully furnished). Government should also provide special transport facilities for working women particularly during the peak hours.

In addition to this, government should also increase investment to improve the human capital by creating more facilities for technical training to the women where they can learn different skills. By increasing skilled laborers, they can get better jobs. Further, more educational institutions should be established particularly in rural areas to make rural female workers more educated.

References

Afzal, M., and Z . M. Nasir (1987), Is Female Labor Force Participation   Really Low and Declining in Pakistan*, The Pakistan Development Review*, Vol.10 No.4.

Azid T., M. Aslam and M.O. Chaudhary (2001), Female labor Force Participation, and cottage Industry: A Case Study of Cloth Embroidery in Rural Multan, *The Pakistan Development Review*, Vol. 40 No.2, pp. 1105-1118.

Bilquess F. and S. Hamid (1989), Lack of Education and Employment Pattern of Poor Labour Women in Rawalpindi City, *The Pakistan Development Review*, 28, No.4, pp.791-801.

Chaudhry M. Ghaffar and Z. Khan (1987), Female Labor Force Participation Rates in Rural Pakistan: Some Fundamental Explanations and Policy Implications, *The Pakistan Development Review*, Vol.10, No.4.

GOP "Economic survey of Pakistan", Finance division, Economic Advisor's Wing, Government of Pakistan, 2003-04, 2005-06, 2006-07.

GOP "Labor Force Survey ",Statistics Division Federal Bureau of Statistics, Government of Pakistan, 2001-2002, 2003-04, 2005-06, 2006-07.

Hamid S. (1991), Determinants of the Supply of Women in the Labor Market: A Micro Analysis, *The Pakistan Development Review*, Vol.30, No.4, pp. 775-766.

International Labor Office (2004), "Global Employment Trend for Women 2004" International Labor Force.

International Labor Office (2006), "Global Employment Trend Brief", International Labor Office.

Irfan, M. (1983), The Determinants of Female Labor Force Participation in Pakistan, *The Pakistan Development Review.*

Kazi S. and Bilques R. (1989), Women in the Informal Sector: Home Based Workers in Karachi, *The Pakistan Development Review*, Vol.28, No.4, pp.777-788.

Kazi S. and Bilques R. (1991), Duality of Female Employment in Pakistan, *The Pakistan Development Review*, Vol.30, No.4, pp.23-34.

Kozel and Alderman (1990), Factors Determining Work Participation and Labor Supply Decision in Pakistan's Urban Areas, *The Pakistan Development Review*, Vol. 29, No. 1 pp. 1-18.

Mathony A.T. (1961), Factors Determining Labor Force Participation of married Women, *Industrial and Labor relation Review*, Vol. 14, No.4, pp. 563-577.

Naqvi, F. Z. and Shahnaz (2002), How do Women Decide to Work in Pakistan, *The Pakistan Development Review*, Vol. 41, No.4, pp. 495-513.

Shah M.N. (1975), Work Participation of Currently Married Women in Pakistan: Influence of Socio Economic Demographic Factors, *The Pakistan Development Review.*