

What factors determine Female Labour Force participation in Pakistan?

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Introduction

Pakistani females have long contributed significantly less than their male counterparts in the labour force. This lack of female labour force participation greatly cuts down the active labour available at Pakistan's disposal and adversely affects its economic growth, gender equality and standards of living as about 58 % of female headed household in Pakistan live below the poverty line compared to 49 % of male headed households. (Encyclopedia of Women and Islamic Cultures: Family, Body, Sexualit, Volume 3). Intuitively, the 77.85 % (Labour Force Survey 2013) of women being out of Pakistan's workforce, can be attributed to the long standing problem of patriarchy which restricts the access of women to productive resources.

Ever since Mincer's pioneering study in 1962 which attempted to reinterpret labour supply by accounting for lifetime variables and the resulting conclusions that family income had no effect on the wife's demand for leisure and that a women's fertility is a major determinant of her labour supply, other researchers took it upon themselves to research in depth into the newly emerging field of female labour force participation which became evident after the suffragette movement. Shah (1976) examined the effects of socio-economic and demographic variables on labour force in all four provinces and concluded a positive relationship between marital status, literacy ratio, and LFP. A negative association was found between LFP and child-women ratio along with an inverse relation with nuclear family type. Shah then in 1986

attempted to observe changes in the role of women against Pakistan's development using Panel data ranging from 1951 to 1981. The study concluded that the strict observance of purdah and the number of durable goods available, along with the level of husband's own education level greatly limited female labour force participation. Kozel and Alderman (1990) made use of the OLS regression and Tobit model to determine the factors which affect labor force participation and supply decisions in urban areas of Pakistan. Rashed, Lodhi and Chisti (1989) examined Female labour supply determinants using a Probit model and only just focusing on Karachi. Both studies concluded a positive relationship between LFP and regressors : education levels and expected increase in wages. Presence of male members in the household found to decrease the likelihood of women working.

Ibraz (1993) studies on factors determining female work force participation based on the Rawalpindi district found religious and cultural views to discourage females from working such as observance of purdah and strict gender segregation, as these hindrances confine women to their private domains whereas Malik (1994) found variables such as age of the women, education and dependency ration to be insignificant in the determination of female labour supply but found there to be a positive relation between predicted male wage and female work force participation rate.

Objectives

This paper will aim to add to the richness of the existing literature by considering women's own characteristics comparing not only the married with the unmarried but considering FLFP for the divorced and the widowed too along with a host of other variables. Our study will also be distinct in that it is using the actual labour force specific data from LFS 2012-13, which most other studies in this area have failed to use instead opting for Integrated household Surveys and PSLM to name a few.

Our first hypothesis is: women's characteristics have no impact on their female labour force participation. Apart from this, we will be taking into account the fact that most women in Pakistan are dependent on the males of their household and face considerable constraints when it comes to them working outside of home. They are allowed to work only when the male is for some reason unable to do so or can't find employment. Hence we will be evaluating the effects of properties related to the head of the household on the work participation rate of women: Second Hypothesis is: head of household's characteristics have no impact on FLFP. Our third hypothesis focuses on whether the fertility of the women along with regional differences resulting from the women's residence being in the urban or rural area has any impact on FLFP and if it makes a difference if the head of the household is a female. Then the third hypothesis is: household characteristics have no effect on FLFP in Pakistan.

For the purpose of testing these hypotheses, we will be using Labour Force Survey 2012-13, the labour participation rate in which is nearly equivalent (32.8 %, 32.9 %) and the gender-area wise rates congruent. Augmented participation rates seem to be curving downwards with most of the employed being classified as employees followed closely by own account workers (Pakistan Bureau of Statistics-LFS12-13).

Methodology

It is often the case that economists are faced with a dichotomous dependent variable which takes the value 1 if it's one part of the binary and 0 otherwise. For such models, OLS and other standard estimators are deemed to be inappropriate due to the limited or qualitative nature of the dependent variable. And because this study inculcates within itself a dependent variable FLFP which takes the value 1 if the women is currently involved in economic activity for profit either on farms, shops, as employee, employer, and other modes of employment and 0 otherwise, we will be turning towards Probit model for estimation of our regressors and their due effect on FLFP.

The Probit model is based on the underlying latent variable FLFP where:

FLFP = F (Women own characteristics-WCH; Head of household characteristics-HHHC; Household characteristics-HC)

$$FLFP = \beta_0 + \beta_1 WCH + \beta_2 HHHC + \beta_3 HC + e$$

Instead of directly observing FLFP, we have assigned it a binary variable which is 1 if the woman in the sample is engaged in any form of economic activity as defined above and 0 otherwise. The residual value given above, ϵ_i , can be seen to represent any sampling errors that may have occurred and any misrepresentation of information on part of our sampling units. It is assumed to be normally distributed with mean 0 and constant covariance. Accordingly, we will be estimating three probit equations, one with a focus on urban areas of Pakistan, one focusing on the rural areas of Pakistan.

Table 1: Definition of variables used in the models

Variables	Description
<i>Women's own Characteristics</i>	
AGE	Age of the women 15–49 years in completed years
AGEsq	Squared of the ages (AGE) of women being considered in the sample
MARRIED	Dummy variable 1 if the woman is married, 0 otherwise
DIVORCED	=1 if the woman is divorced, 0 otherwise
WIDOWED	=1 if the woman is widowed, 0 otherwise
PRIMARY	=1 if the woman has completed 5 years of primary education, 0 otherwise
SECONDARY	=1 if the woman's highest level of completed education is secondary, 0 otherwise
HIGH	=1 if the highest level of education includes highschool, undergrad, masters or doctorate
<i>Head of Household Properties</i>	
HAGE_hh	Age of the Head of the Household
HAGESq_hh	Squared of HAGE_hh
HPRIMARY_hh	=1 if H of HH level of education is completed primary, 0 otherwise
HSECONDARY_hh	=1 if H of HH level of education is completed secondary, 0 otherwise
HHIGH_hh	=1 if H of HH level of education is completed highschool, undergrad, masters or doctorate, 0 otherwise
HLIT_hh	=1 if the head can read and write in any language, 0 otherwise
HEMLOYER_hh	=1 if the head's employment status is that of an employer, 0 otherwise
HEMLOYEE_hh	=1 if the head's employment status is of a paid employee somewhere, 0 otherwise
HSELF_EMPLOYED_hh	=1 if the head's employ.st. is that of having been self-employed in own enterprise, 0 otherwise
HUNPAID_hh	=1 if the head is an unpaid family worker, 0 otherwise
<i>Household Features</i>	
FHEAD_hh	=1 if head of the household is a female, 0 otherwise
CHILDNO_hh	Number of kids in the household under the age of 16

Results and Discussion

Results of the Table 1 provides us with standard probit parameters with their asymptotic t-statistics in parentheses, while Table 2 gives the predicted probabilities. We will be making use of Table 2 (predicted probabilities) for greater accuracy and to account for the fact that other variables are more often than not never null but rather are at levels of which we have taken the average. Established relationships (signs) of all three results are the same. It can be seen that age has a positive impact on Female Labour Force Participation when Pakistan is taken as a whole and when separate regressions are run for rural and urban areas. A one unit or a one-year increase in age of the woman can result in 3.6 %, 2.8 % and 2.6 % increase in labour participation in Pakistan, Urban and Rural areas respectively. On the other hand, AGEsq i-e the squared of ages indicate a negative relationship with FLFP in all three cases intuitively due to the falling mental prowess of humans as they age.

Marital Status is another significant factor which determines whether women are allowed to work in Pakistan or not. The three sub groups of marital status, married, divorced and widowed, are being measured against the base group of unmarried women. We can see that a woman getting married decreases her chances of working by 21 % in Pakistan, rural and urban area following the same trend, however, the chances of a divorcee to work in rural areas increases in contrast to urban area and Pakistan in general. The variable indicating the divorcees is, however, insignificant in relation to FLFP. Widowship follows the same trend as being married, due to the religious obligations of women being confined in their houses for a fixed period of time and the societal stigma attached to widows working. This variable is insignificant too but results in relatively smaller decrease in FLFP as compared to being married, most likely due to the widows having to work to satisfy their basic needs and wants after the passing of their husbands. Education(Primary, Secondary and High) is positively related to FLFP in all three incidence and establishes itself as a strong determinant of

women economic participation for profit as apart from these values being statistically significant, secondary and higher education increase the probability of women working in Pakistan by quite a lot i-e 30 % and 52.4 % respectively. Primary education, though has a positive effect on FLFP, is deemed insignificant in urban areas where strict competition and the education spiral moves the employers to favour those who are highly educated whereas in Rural areas, primary education is significant at 5 % sig.level but leads to a mere 3.8 % increase in females working. Secondary and higher education statistics in rural areas: 14.5 % and 48.1 % respectively, however, indicate a substantial increase in the probability of women working than those who are not educated up to these levels. We have discussed Women's own characteristics up till now, however, due to the long standing patriarchal mind-set that prevails in Pakistan, a majority of women are made to follow the decisions of their male counterparts who may or may not only allow their female relatives to work, but rather whose own characteristics can have a profound impact on whether the wife, a daughter, a sister or the mother works. Hence, we have included the properties of the men of the households who in Pakistan are considered head of the family.

Unlike the females themselves, higher the age of Head of household (men) , the lesser the incidence of women working in Pakistan(rural and urban) although the parameter for urban area is insignificant. Similarly, higher the education level of a man, higher the probability of a woman not working. This may be due to an illiterate male head having lower prospects of a job and a good one at that and hence the woman working to help with the finances of the house. We can observe decreasing FLFP by a bigger ratio as the head passes the education levels of primary, secondary and high in Pakistan: from a 2 %(insignificant) decrease in FLFP from the male head being primary educated to a 7.3 % decrease in FLFP if the male head gains higher education.

An unusual finding though comes in the form of a positive, significant relationship between FLFP and the employment status of the male head which also clash with the estimates of the probit equation in table one. Predicted probabilities indicate the probability of women working actively in the labour force to increase if either the male head is an employer, an employee and or self-employed by 13.1 %, 51.9 % and 31.3 % in Pakistan while the probability of the woman working decreases if the male head is an unpaid family worker. In contrast to this, the probit coefficients indicate a decrease in women working if the male head is an employer of sorts or self-employed in Pakistan. This in itself is contradictory to the estimates of urban and rural probit coefficients which indicate a positive relation between FLFP and the male head being employed. Marginal Effects follow the path of the predicted probabilities. A deviation from this unusual trend is in urban areas where if the male head is an employer in an enterprise or self-employed, owning his own business, then FLFP decreases. It is difficult to explain this anomaly. The remaining two variables referring to Household Characteristics indicate a higher probability of women working in the workforce if they are the Head of the households by 46.8 %, 22.3 % and 42.5 % in Pakistan, urban and rural areas respectively. As head of the household, they are likely responsible for bringing in the required income to satisfy the basic needs of the house. On the other hand, greater the number of dependent children who the women, as tradition requires them to, have to look after, lower their economic activity for profit in all three instances.

Conclusion and Policy Implications

In order to identify the factors that determine female labour force participation, this paper has made use of the Probit model to account for dependent binary variable and have used Labour Force Survey 2012-13 to adequately use data collected with the view of discerning the workforce position of Pakistan. 3 sets of independent variables were used to explain FLFP; Women's own characteristics, Head of

Household Characteristics, and Household characteristics and their results declared. The low participation rate amongst females of Pakistan can be attributed to disruption in their education due to marriage, domestic duties and household discriminatory views. These factors do not only mean that employers offer them lower wages to account for their transient position but due to women's own high reservation wages and lower demand for their labour, a discouraging framework is established for them to work. However, taking into account the evolving state of female labour force participation over the decades, it is clear that female population can now greatly alter the path of development and provide third world countries such as Pakistan much needed human capital which can go on to increase national income. However, the relationship between participation and economic growth is not as straightforward as it seems because a lot goes into the decision-making process of a woman deciding to work. It is these factors that this paper has analysed to better equip development economists on the policies which target women specifically and aim to increase FLFP. Beyond the standard labour force statistics, policy makers should ensure that women are provided equal educational facilities as this one factor can increase the probability of a woman entering the workforce manifold.

An alternative to educational facilities, is providing vocational training pertaining to established industries in Pakistan so that women are not left behind men when it comes to labour force participation. Emphasis should be placed on the education of young girls so that they don't drop out, rather complete higher levels of education and make use of better employment opportunities. Apart from education, a change in mind set is needed such that the males of the household, along with the females, are made aware of women's rights and their ability to work and work effectively. The stigma around any female working needs to be removed and wider options of fields should be made available to them for equal dispersion of gender across occupations. With about half of Pakistan's population consisting of females, obstacles on their path to work will hinder the country's development. In order to ease the burden

of domestic responsibilities, government can establish care centres to look after children while mothers work.

References

Berndt, E. 1996. *The practice of econometrics*. New York: Addison Wesley Longman Publishing Co.

Mahmood, A. 2005. Pakistan Society of Development Economists, Export Competitiveness and Comparative Advantage of Pakistan's Non-Agricultural Production Sectors: Trends and Analysis. *PIDE*.

Naqvi, Z. and Shahnaz, L. 2002. How do women decide to work in Pakistan?. *The Pakistan Development Review*, pp.Part II: 495-513.

Todaro, P. and Kuznets, S. 1990. Economic Development, the Family, and Income Distribution: Selected Essays. *Population and Development Review*, 16(1): .176.

Table 1: Results of the initial run of the Probit Model

VARIABLES	Probit Coeff :Urban	Probit Coeff :Rural	Probit Coeff
AGE	0.098(0.014)***	0.082(0.007)***	0.094(0.006)***
AGEsq	-0.0011(0.00018)***	-0.001(9.49e-05)***	-0.0011(8.23e-05)***
MARRIED	-0.607(0.0992)***	-0.451(0.0593)***	-0.548(0.0494)***
DIVORCED	-0.140(0.336)	0.0926(0.212)	-0.0462(0.177)
WIDOWED	-0.0278(0.198)	-0.109(0.113)	-0.119(0.0955)
PRIMARY	0.126(0.0951)	0.119(0.0552)**	0.173(0.0462)***
SECONDARY	0.294(0.0910)***	0.449(0.0856)***	0.597(0.0591)***
HIGH	0.771(0.0903)***	1.490(0.0978)***	1.366(0.0604)***
HAGE_hh	-0.0183(0.0135)	-0.044(0.0067)***	-0.0432(0.00595)***
HAGEsq_hh	0.00014(0.00013)	0.0005(66e-05)***	0.0005(5.86e-05)***
HPRIMARY_hh	-0.0886(0.112)	-0.0357(0.0577)	-0.0671(0.0497)
HSECONDA_hh	-0.189(0.111)*	-0.161(0.0722)**	-0.0914(0.0578)
HHIGH_hh	-0.271(0.111)**	-0.225(0.0917)**	-0.191(0.0651)***
HLIT_hh	-0.168(0.0957)*	0.0297(0.0485)	-0.0210(0.0418)
HEMPLOYE_hh	-0.627(0.148)***	0.489(0.235)**	0.340(0.120)***
HEMPLOYEE_hh	0.275(0.0821)***	1.425(0.0394)***	1.352(0.0335)***
HSELF_EMPLD_hh	-0.114(0.0840)	0.836(0.0405)***	0.817(0.0346)***
HUNPAID_hh	-1.806(0.284)***	-0.551(0.148)***	-0.760(0.132)***
FHEAD_hh	0.779(0.129)***	1.318(0.0653)***	1.220(0.0573)***
CHILDNO_hh	-0.0165(0.0139)	-0.0226(0.0072)***	-0.0272(0.00630)***
Constant	-0.166(0.411)	-1.466(0.199)***	-1.394(0.175)***
Observations	2,829	9,123	11,952

Note: Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1

Table 2: Predicted probabilities based on Probit regression

VARIABLES	Predicted prob.	Predicted prob. Urban	Predicted prob. Rural
AGE	0.0361(0.0025)***	0.0281(0.0042)***	0.0266(0.0024)***
AGEsq	-0.0004(3.16e-05)***	-0.0003(5.31e-05)***	-0.0003(3.06e-05)***
MARRIED	-0.210(0.019)***	-0.174(0.028)***	-0.146(0.0191)***
DIVORCED	-0.0177(0.0678)	-0.0401(0.0961)	0.0299(0.0684)
WIDOWED	-0.0458(0.0366)	-0.00797(0.0568)	-0.0352(0.0365)
PRIMARY	0.0664(0.0177)***	0.0360(0.0273)	0.0383(0.0178)**
SECONDARY	0.229(0.0227)***	0.0842(0.0261)***	0.145(0.0276)***
HIGH	0.524(0.0235)***	0.221(0.0255)***	0.481(0.0321)***
HAGE_hh	-0.0166(0.0022)***	-0.00525(0.00387)	-0.0143(0.0021)***
HAGEsq_hh	0.0001(2.25e-05)***	4.13e-05(3.84e-05)	0.00016(2.14e-05)***
HPRIMARY_hh	-0.0258(0.0191)	-0.0254(0.0321)	-0.0115(0.0186)
HSECONDA_hh	-0.0351(0.0222)	-0.0540(0.0318)*	-0.0519(0.0233)**
HHIGH_hh	-0.0733(0.0250)***	-0.0777(0.0318)**	-0.0728(0.0296)**
HLIT_hh	-0.00807(0.0161)	-0.0480(0.0274)*	0.00959(0.0156)
HEMPLOYE_hh	0.131(0.0461)***	-0.180(0.0425)***	0.158(0.0757)**
HEMPLOYEE_hh	0.519(0.0128)***	0.0787(0.0236)***	0.460(0.0127)***
HSELF_EMPLD.hh	0.313(0.0132)***	-0.0326(0.0241)	0.270***(0.0129)
HUNPAID_hh	-0.292(0.0507)***	-0.517(0.0806)***	-0.178(0.0478)***
FHEAD_hh	0.468(0.0222)***	0.223(0.0360)***	0.425(0.0216)***
CHILDNO_hh	-0.0104(0.00242)***	-0.00473(0.00397)	-0.00729(0.00235)***
Observations	11,952	2,829	9,123

Note: Standard errors in parentheses*** p<0.01, ** p<0.05, * p<0.1