Impact of Earnings on Female Labor Participation:
A Case Study of Tehsil Vehari Pakistan

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Abstract: The purpose of this research is to examine why women either do not participate labor market or leave the market early. Vehari, being a small area was never focused earlier to check the ratio of female participation. Field survey was conducted randomly selecting Tehsil Vehari, as a research area intentionally. A sample of 200 working women were selected both from rural and urban areas of Tehsil Vehari. The results OLS and Logit model indicate that were used for analysis. Education has positive relation with female earnings and participation as described by Mincer (1962, 1974). Resident location shows that those females who live in urban areas are highly participated in labor market rather than those women who live in rural areas. The experiential outcome provided sufficient support in goodwill of human capital investment as an efficiency enhancing tool for female. In the light of obtained results it is suggested that the education up-to the secondary level for women should be compulsory and government must provide these facilities free to every single female. Specialized information and technical based education must be promoted with best superiority.

Key words: Female participation · Occupation · OLS and Logit

INTRODUCTION

Labor force participation is very essential in the economic growth and progress. It is also accommodating in reducing the poverty ratio. As well as female involvement in labor market is also very imperative. In Pakistan, females, from half of the total population plays momentous role in country's economy. But unfortunately ratio of female participation in Pakistan is relatively low from past few decades [1].

There is a huge amount of literature to identify which factors strengthen labor force participation of the female and what can clarify differences crosswise countries. One aspect that has been projected is differences in societal policies that guide to differences in accessibility and cost of no parental child care. Societal policies can deal with issues like labor market participation and care of child, hence encouraging superior female labor participation rates [2]." In fact, women have an imperative element in economic progress procedure exterior as well as in the interior of their home, cities, villages in formal and informal sectors [3].

The purpose of this study is to determine the impact of earnings on female's participation in Tehsil Vehari. In Pakistan, Punjab province is known as the most populated province and has been alienated into three regions like North, Central and South Punjab. South Punjab is measured as the underdeveloped region of Punjab. District Vehari is a central part of South Punjab for farming output and it is positioned at the right bank of the river Sutlej.

The rest of the paper is as follows; in section two, relevant literature is reviewed. While the third section deals with the theoretical model. The results are discussed in fourth section and study is concluded in the last section.

Literature Review: [4] examines the effects of health and education on female earnings. The empirical evidence from district Vehari explored that education have momentous role in economic enlargement. Learning seeks to anticipate outcome of education and fitness on female earnings in Pakistan. Fall out showed that health and education have encouraging and momentous impact on

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female earnings. Superior earnings allied with the superior level of education. Suggestions were that education for female will be essential up to secondary stage and administration must provide this liberally for all females.

[5] analyzed women's labor involvement and their cultural factors in Chile. He used cross sectional data lying on variables that may explicate womanly contribution in the work market like age, education, marital status, number of children. Result suggests that education, age, number of children and living in rural areas are imperative clarifying variables to explanation for the manners of women in the work market. Statistics had taken from ISSP[1]. Descriptive statistics explained that Education and female labor involvement had positive association with each other. But on the other side married women who had children but not school going age have wretched effect on female contributions.

[6] explored the determinants of Female work participation in Pakistan. in developed countries there has excessive improvement of economic development due to upsurge female involvement in labor market. End result showed the negative effect of female participation and age. Married women were less to contribute in the labor market due to high household tasks which deteriorated the ratio of working females. Education level and the income of households ensure positive effect on FLFP. Agricultural ladies stood most probable to play a part in manual labor market than those of non-agricultural. Various socioeconomic and demographic factors determine FLFP judgment for all four provinces in Pakistan.

[7] explained labor force partaking in India as some facts some queries illustrated that most part of Indian women have less participated. Ratio of female participation is shockingly little. Outcome prove that India have minor labor force contribution globally and one of the lowest rates for urban women. Female involvement has optimistically correlated with income and education. If years of female education raised about 0.6% then participation of female determination also raised. Male education has unhelpful collision, enhance in 1 point of male's education means earnings forgo. Most likely that it cause of gender wage-gap.

[8] summarized trade liberalization and female labor force participation as evidence from Brazil, stated that division impact of trade reforms crosswise the income or

skill sharing, study seeks to fill this fissure and investigates the collision of Brazil's (1987-1994) trade liberalization on labor force contribution of women. They used panel data set and Robustness analysis. Neoclassical trade theory, Hekscher Ohlin model and Stolper-Samulson theorem were strictly linked with trade reforms. Upshot shows that trade liberalization for women, but augmented labor market and male unemployment mostly potential also induced women to attach the labor force.

[9] estimated labor force involvement of married women in Turkey, concluded that women's whose husband or household's leader was underemployed and unemployed were more likely to take a part in labor involvement and work more hours. Cross sectional data used by them in this investigation from Turkish household's labor force input *(HLFS)* from the period of (2000 to 2010)[2]. Education and adults have encouraged or increasing outcome on labor input of married while young children have pessimistic impact. Consequence shows that education and age of family had activist but children have pessimistic effect on FLFP. And the number of other adults in the households had positive impact on FLFP.

[10] examined Push or pull drivers of female labor work involvement during India's economic boom states that existing trends in employment and earnings propose the lower stage of education, female labor force association determined by essential rather than economic opportunities by using unit level statistics. With decline of fertility and the point of non-working time declined and one would suppose female labor sharing rate to rise. Women estimated market wage rate positively affects participation; huge family dimension and high households work shipment have depressing effect. Unit level assessment definitely shows that vastly instructive women, as conflicting to poorly educated are pinched into labor force by higher predictable earnings. Their own education has confidently impact while household's education has no affect. Low educated urban labor for male and female did not seemed to develop so; their labor force have no activist impact on economic activity.

Theoretical Model: The economic analysis of female labor force participation attracted considerable attention since the pioneering works of [11, 12] Gary Becker (1964).

Table 1: Relationship and hypothesis of variables:

Dependent variable	Definition	
Female Participation	Participation of female	
Independent variable	Definition	Hypothesis relationship
Health	Availability of health facility	+ve
Age	Age of respondents	+ve
Married female	1, If she is married (as dummy variable)	+ve
Unmarried	0, if she is unmarried (as dummy variable)	-ve
Education	Education of respondents	+ve
Household size	Total members living in respondents house	+ve
Participation rat	Participation ratio of respondents in family decision	+ve
Gender wage gap	How much gender wage gap found in family	-ve
Occupation	Choice of occupation of respondents (as dummy variable)	+ve
	1, if she is Teacher	+ve
	2, if she is employee	+ve
	0, if she is household	-ve
Distance	Distance from home to job place	-ve
Monthly earnings	Monthly earnings of respondents	-ve
Number of earners	Number of earners in respondents house	-ve
Resident location	Resident location of respondent (as dummy variable)	-ve
	1, if she lived in city	+ve
	0, if she lived in village	-ve
Household income	Income of household of respondent	-ve

"This research is based on Mincer's human capital earning function (HCEF), Heckman's earning function and Becker's theory of time allocation. The human capital earning function explored by [12] and its adapted practical forms were worn to detain the consequences of education and other variables on earnings for man and womanly workers independently. The fallout of various studies[3] indicated that education and practice were two foremost sources of human capital structure, which had a straightly and optimistically affect an individual's lifetime earnings.

Source of Data: District Vehari is a central part of South Punjab for farming output and it is positioned at the right bank of the river Sutlej. This district contains of three Tehsils, Burewala, Mailsi and Vehari. Its overall population is 2,613,020 with an area of 4373 km. Tehsil Vehari is randomly selected out of three Tehsils and total 200 respondents from rural and urban areas between the ages of 22-55 are selected for survey. Respondent was the effective and working woman whether she is educated or uneducated. We adopted the questionnaire used by [4] and conducted a simple cross sectional survey because it is cheap and easy to reach a lot of people.

OLS Model: We use OLS technique in this article following Chaudhry, Fridi, Anjum (2010) in the following form

$$Y = \alpha + \beta^* X_i + \mu_i \tag{1}$$

Where 'Y' stands for vector of dependent variable that is monthly earnings which we use as proxy variable in our estimations, β^* 'is the coefficient vector, 'X_i' stands for explanatory variables and 'μ_i' represents the error term.

We have developed female participation equations from the specific form of equation.

FP = f (Age, Ocp, Edu, Marital status, members, household income, number of earners, resident location, health, wage gap, distance, participation in decisions) (2)

Logit Model: Secondly the Logit model is applied for the empirical analysis. The logit model specification for the multiple regression function is.

$$\text{Prob } (Y=1) = F (\beta^* X) \tag{3}$$
$$\text{Prob } (Y=0) = 1 - F (\beta^* X) \tag{4}$$

Using the logistic distribution we have

$$\text{Prob } (Y = 1) = e^{\beta^* X}/1 + e^{\beta^* X} = \Lambda (\beta^* X) \tag{5}$$

Where:

Λ represents the logistic cumulative distribution function.

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[3]Chaudhary and Faridi (2010), Contreras, Plaza (2010)

$$E[Y/X] = 0 \ [1- F \ (\beta^*X)] + 1[F \ (\beta^*X)]= F \ (\beta^*X) \qquad (6)$$

In this Logit model specification we used *Y=1* and *Y=0*.

- *Y=0* for those individuals who have earnings >8000
- *Y=1* for those individuals who have earnings <8000

Definition of the Variables: Table 1 presents the definitions of above mentioned variables.

RESULTS

The results are depicted in tables given below. Table 2 explores the ratio and variability among dependent and independent variables.

The Table 2 represents results of the OLS Regression Model analyzing the Female labor participation ratio. A probability level of up to 10% (p<0.10) was accepted since the aim of the result was not to predict female labor participation ratio, but merely to determine the influence of specific variables.

In Table 3 we have the results of female participation. The explanatory variables age and occupation are significant at one percent (p<.01) level and occupation is significant at five percent (p<.05) level of significance. Our result matches with the study of Anjum and Faridi (2010) and Anjum and Chaudhry (2010). Occupation is positively related with female earnings and female participation. Education has positive relation with female earnings and participation as described by [11, 12-20]. Distance, household income and resident location are significant but their signs are opposite to our hypothesis. It implies that according to our result, unexpectedly, the estimated coefficient of distance from home to job place is positive. This shows that as increase in the distance from home to job place will leads to increase female participation and their earnings. This result explained the behavior of the women in Vehari that due to backwardness of the region, people prefer to do job in other regions not in their vicinity. Household income is an important variable that effect female's participation in labor market. The result implies that if household income will be more, then it will promote female participation and force to get involve in labor market in vehari. A different attitude of the people of Vehari is depicted in this result that families with higher incomes are more open minded then the lower income families. Resident location shows that those females who live in urban areas are highly participated in labor market rather than those women who live in rural areas.

Table 2: Descriptive statistics of exogenous variable:

Variables	Mean	Maximum	Minimum	St. Deviation
Age	33.96	55.00	20.00	8.0279
Eductn	14	18.00	10.00	1.8952
Membrs	5.3535	8.00	2.00	1.8698
Ernings	2.1010	4.00	1.00	0.73533
Hoshld incm	15080.80	20000	1000	4726.55
Wage gap	7727.273	120000	0.00	12243.13
Dstnc	9.64646	35.00	0.00	10.2929
Participation	62.9292	100.00	10	22.01589

Table 3: OLS results of female labor participation:

Dependent Variable = Female participation				
Variable	Coefficient	St. Error	t-Statistic	Prob-Value
Constant	-17791.46	4246.969	-4.189214	0.0001***
Age	290.3383	57.27958	5.068792	0.0000***
Dstnc	146.4926	40.80127	3.590392	0.0006***
No. of ernrs	161.1019	546.8561	0.294596	0.7690
Educatn	496.9089	205.1707	2.421930	0.0176**
Gender wage gap	0.028787	0.031665	0.909124	0.3659
Helth facility	-801.4071	899.4693	-0.890978	0.3755
Hosehold Incm	0.418292	0.083901	4.985528	0.0000***
Mritl Status	443.5836	936.9296	0.473444	0.6371
No. of members	-303.8634	214.1774	-1.418747	0.1596
Ocp	5362.047	650.0022	8.249275	0.0000***
Participation in Family dcision	-23.66554	17.02716	-1.389870	0.1682
Rsidnt Locatn	1659.035	896.3151	1.850951	0.0676*
R2= 0.792502	F-Statistic= 24.97244			
Adj-R2 = 0.760767	Prob(F-statistic)		Durbin-Watson	
	= 0.000000		= 2.065320	

Note:* ** indicate significance at a 1% level; ** indicate significance at a 5% level; * indicate significance at a 10% level.
(Source: researchers' estimations by using E-views statistical software)

Table 4: Logit result of female labor participation:

Dependent Variable = Female participation				
Variable	Coefficient	St. Error	Z-Statistic	Prob-Value
Constant	-16.12522	5.793274	-2.783438	0.0054****
Age	0.127006	0.068576	1.852061	0.0640**
Dstnc	0.061818	0.041464	1.490889	0.1360
Educatn	0.381346	0.258788	1.473583	0.1406
No. of ernrs	-1.114860	0.674022	-1.654043	0.0981**
Wage gap	0.00000932	0.0000312	0.298534	0.7653
Helth facility	-1.527208	1.029726	-1.483121	0.1380
Hosehold Incm	0.000452	0.000145	3.109888	0.0019****
Mritl Stats	0.958090	0.999047	0.959004	0.3376
Membr lvng in house	0.253080	0.272031	0.930338	0.3522
Ocp	3.484958	1.007477	3.459096	0.0005****
Prticipatn in Family dcisn	-0.008536	0.022130	-0.385744	0.6997
Rsidnt Location	-0.549145	0.896338	-0.612654	0.5401
McFadden R squared	LR statistic		Prob(LR statistic)	
(0.637502)	(87.17704)		(0.000000)	

Note:* *** indicate significance at a 1% level; *** indicate significance at a 5% level; ** indicate significance at a 10% level. (Source: researchers' estimations by using E-views statistical software)

The explanatory variables like number of earners, gender wage gap, health facility, marital status, number of members and participation in family decision are statistically insignificant.

Logit Model Results: Table 4 represents the results for the Logit Regression Model analyzing the Female labor participation ratio.

Logit Model result explains that all exogenous variables are significant. Negative sign of number of earners shows that as number of earners in family will be fewer then participation will increase. Age of female worker is significant at 10% level (p<.10). Positive sign shows that as age of a female increases, their participation in labor market also increases, Households income shows that they are statistically significant but opposite from our hypothesis. But in reality if household's income will less or fewer in amount then female participation will be observed more. Other explanatory variables, distance from home to job place, gender wage gap, education, availability of health facility, marital status, members living in house, participation in family decision and resident location are not statistically significant. So, the estimations show that these variables have not impact on our research or on female labor participation.

CONCLUSION

The most important purpose of this research was to examine the sound effects of variety of variables of household earnings on female labor participation. The results based on Mincerian measurement show that each year of education leads to increase the female involvement in work market. Occupation and household income also matters to enhance female labor participation. The estimations signify that education at different level, choice of good occupation and household income, age of female, number of earners and household income brings a significant increase in female participation in labor market. The results show that more participation is associated with different levels of education. Low participation of females is observed as compared to gender wage gap, resident location and less participation in family decisions. Age also a significant variable that affects female participation of respondents optimistically and appreciably. Married females as compare to unmarried females comprise more participation. Females living in city areas are showing more female participation than those women who live in villages. Hence, the research concludes that education, choice of occupation and

health facility has encouraging and significant impact on female participation in Tehsil Vehari. So it is suggested that the education up-to the secondary level for women should be compulsory and government must provide these facilities free to every single female. Specialized information and technical based education must be promoted with best superiority.

REFERENCES

1. Faridi, M.Z., I.S. Chaudhry and M. Anwar, 2009. The Socio-Economic and Demographic Determinants of Women Work Participation in Pakistan: Evidence from Bahawalpur District. A Research Journal of South Asian Studies, 24(2): 353-369.

2. Attar, M.B., 2007. Trust Child Care, Technology Choice And Female Labor Force Participation. IZA, Discussion, pp: 3135.

3. Jahan, R., 1996. The Elusive Agenda: Meanstreaming Women In Development. The Pakistan Development Review, 35(4): 825-834.

4. Chaudhry, I.S., M.Z. Faridi and S. Anjum, 2010. The Effects of Health and Education on Female Earnings:Empirical Evidence from District Vehari. Pakistan Journal of Social Sciences (PJSS), 30(1): 109-124.

5. Contreras, D. and G. Plaza, 2010. Cultural Factors In Womens' s Labor Force Participation In Chile. Feminist Economics, 16(2): 27-46.

6. Ejaz, M., 2011. The Determinants of Female Labor Force Participation in Pakistan: An Instrumental Variable Approach. CREB Working, pp: 01.

7. Bhalla, S.S. and R. Kaur, (n.d.). Labour Force Participation of Women in India: Some facts, some queries. Asia Research Centre Working, pp: 40.

8. Gaddis, I. and J. Pieters, 2012. Trade Liberalization and Female Labor Force Participation: Evidence from Brazil. Discussion, pp: 6809.

9. Karaoglan, D. and C. Okten, 2012. Labor Force Participation of Married Women in Turkey: IZA Discussion, pp: 6616.

10. Klasen, S. and J. Pieters, 2012. Push or Pull?Drivers of Female Labor Force Participation during India's Economic Boom. Discussion, pp: 6395.

11. Mincer, J., 1962. Labor Force Participation of Married Women: A Study Of Labor Supply, In Aspects of Labor Economics. the National Bureau Of Economic Research, pp: 63-106.

12. Mincer, J., 1974. Schooling, Experience and Earnings. National Bureau Of Economic Research Ney York.

13. Bloom, D.E., D. Canning, G. Fink and J.E. Finlay, 2007. Fertality, Female Labor Force Participation and The Demographic. Working, pp: 13583.

14. Burtless, G., 2006. The Recent Decline In The Labor Force Participation Rate And Its Implications for Potential Labor Supply:comment. Brookings Papers on Economic Activity, 0(1): 135-143.

15. Attanasio, O., H. Low and M.V. Sanchez, 2004. Explaining Changes In Female Labour Supply In A Life Cycle Model. Cambridge Working Papers In Economics, pp: 0451.

16. Becker, G.S., 1965. Theory Of Allocation Of Time. The Economic Journal, 75(299): 493-517.

17. Claudia, G., 1977. Female Labor Force Participation: The Origin of Black and White. Journal of Economic History, 37(1): 87-108.

18. Cotter, D.A., J.M. Hermsen and R. Vanneman, 2001. Women's Work And Working Women The Demand for Female Labor. GENDER & SOCIETY, 15(3): 429-452.

19. Cramer, J.C., 1980. Fertality And Female Employement. American Sociological Review, 90: 45-167.

20. DiCecio, R., K.M. Engemann, M.T. Owyang and C.H. Wheeler, 2008. Changing Trends in the Labor Force: A Survey. Federal Reserve Bank of St. Louis Review, 90(1): 47-62.