

FEMALE LABOR SUPPLY, POVERTY AND INFORMAL SECTOR EMPLOYMENT: A MICRO STUDY

Abstract

This study analyzes personal, socio-economic and household factors that determine the female hours supply to income generating activities in rural and urban areas of Southern Punjab (Pakistan). The study is based on data collected through conducting a household survey during 2013. A sample of 124 female workers in cottage industry is selected in rural and urban areas. By using ordinary least squares estimation technique, the study results indicate that educational dummies, technical education, joint family set up and headship are the major factors which influence female workers to supply hours in cottage industry in informal sector to improve living standard.

Key Words: Informal Sector, Female Work Participation, Poverty, Working Hours, Embroidery; Employment

Introduction

Women play an important part in employment creation, income generation and poverty alleviation by making use of them in income generation activities in informal sector especially in cottage industry in Southern Punjab. Almost female possess some kind of skill training and technical education working in rural and urban informal sector. It is important to study this issue because informal sector employs 73.3 percent of Pakistan's total labor force. The women are disproportionately distinguished in the Pakistan's informal sector. There are about 71.1 percent of female labor force participants in informal sector in Pakistan. In Pakistan, up to 22.3 percent workforce is engaged in manufacturing sector and 57.4 percent female workers are occupied in manufacturing sector in informal sector of Pakistan. In fact cottage industry plays a significant role in the development of Pakistan economy with little financing, imported and highly sophisticated technology. The females' participation in cottage industry has also been proved to a large extent in the number of studies as a way to reduce poverty in rural as well as in urban areas.

The female labor force in rural and urban areas of Southern Punjab create employment opportunities, generate income and reduce poverty by employing themselves in work-related activities especially in business of cloth embroidery. However, they experience low income and are exploited in an attempt to contribute in family expenditures and to fulfill their basic necessities. Moreover, their income remains low as compared to male participants. However, they try to contribute in family expenditures to reduce their poverty with this small amount of income. The earning opportunities in business of cloth embroidery are required to develop in order to redirect the poor female participants to enhance their productivity and income as well. The purpose is to highlight the personal socio-

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economic, household and demographic factors that motivate the female workers to supply labor hours to participate in informal sector in Southern Punjab. We based our study on primary data source. The organization of the study is as follows. Section I describes the introduction. In Section 2, the review of literature is explained. Data source and methodology are discussed in section 3. Section 4 highlights the results and discussion. In section 5, we present conclusion and suggestions.

Literature Review

A lot of attempts have been made in the literature regarding economic theory of the household such as Becker (1965) and Gronau (1977) laid the foundation in the field and argued time allocation behavior of households. A large number of empirical studies have also been made in developing and developed countries.

Cohen, *et al.* (1970) and Ashen felter and Heckman (1974) emphasized on a special case of family utility function. Becker (1974, 1981) highlighted the importance of marital status in household labor supply models. The added worker effect and discouraged worker effect in the background of family economics was discussed by Mincer (1962) and Mitchell (1980).

Becker (1965) made a detailed view of the market and non-market activities and Gronau (1973, 1977, and 1973) made further developments. Cogan (1980, 1980a, 1981) emphasized the effect of job costs and labour supply in model of family economics. Beg (1973) studied the labor force participation rate by using data collected from 1951 to 1961 census and from labor force survey in Pakistan. The study concluded that there was an increase of labor force participation rates in non-agricultural activities while the labor force working in agriculture activities remained more or less same

Altug and Miller (1998); Cogatay and Ozler (1995); Klaauv (1996) discussed the female labour supply for the developed economy. Khandker (1988); Hill (1982); Fong (1975) and Yusuf and Burgis (1979) explained the female labor force participation in the developing countries.

Shah (1975) focused on the role of demographic, socio-economic factors and modernization on labor force participation by drawing data from survey 1968-69 (PIS). The results found that forty and above age group, larger duration of marriage and to a smaller extent the numbers of surviving children and labor force participation were positively associated. On the other hand those women who possessed higher education or with the higher education of their husbands were negatively related with labor force participation. Moreover, labor force participation decreased with ownership of agricultural land and durable items. However, study based on data which was restricted to a national sample of currently married women.

Sather and Kazi (1988) worked on problems being faced by the female workers in informal sector. The author used descriptive analysis and distinguished between formal and informal sectors. It was found that workers of the informal

sector were poor, illiterate and unhealthy. They were engaged in informal activities in order to fulfill their basic requirements and obtained low wages.

Kozel and Alderman (1990) estimated the motivated factors determining work participation in urban areas of Pakistan based on data collected in 1986 under the auspices of International Food Policy Research Institute (IFPRI) and PIDE. Dummy variables for the highest level of education achieved (primary, middle school, secondary, university), age, age-squared, which represent job experience were explanatory variables which influenced the earnings. By using the tobit and probit estimation technique, the result showed that the education powerfully influenced the wage received.¹ It was found a positive relationship of labor force participation with expected earnings and wages certainly varied with variations in human capital in the form of education and work experience.

Ali (1990) focused on problem of rural women in the informal sector and its contribution to the rural non-formal sector. The study conducted a survey in six villages selected randomly in District Multan. The findings concluded that there were economic factors responsible for the miserable plight of women engaged in the rural area and great hurdle in better utilization of their skills, efforts and time.

Aly et al. (1996) investigated the socio-economic factors that influenced Kuwaiti women's labor market participation decisions.¹¹ The author used the non-linear maximum likelihood function method for cumulative Logistic probability function. The results showed that economic factors like women's monthly wage rate and women's human capital, replicated in women's education positively affected the decision concerning women's labor force participation. Contrarily, the social or biological factors such as women's marital status, number of children under five years of age, and women's age negatively influenced the women decision regarding labor force participation.

Azid et al. (2001) worked on female labor force participation in cottage industry based on data from rural women of District Multan. The authors used ordinary least square estimation technique in order to see the influence of personal, family and social characteristics on female hours supply. Findings showed that there was a positive relationship between poverty, joint family set up and working hours. The results also pointed out that the children less than five years of age and number of male adults in the family was negatively associated with the supply of labor hours from women. Furthermore, the effect of an increase in women's education level was found to be indeterminate. The study suggested that there was need to identify the public policy and programmes should be launched to improve the status of workers and to develop this sector.

Das (2003) emphasized on the other side of employment by drawing from the Indian National Sample Survey 50th round (1993-94). The results indicated that those individuals who had low human capital preferred the self-employment in household enterprises as a survival strategy in urban areas. Results also showed that religion, caste and male gender were crucial factors towards self-employment.

¹ Regarding education study results support Banerjee's (1983) results.

¹¹ Kozel and Alderman (1990) also made a study of labor force participation decisions like this research.

Moreover, married women with large household size reduced the work participation in self-employment in household enterprises.

Heckman *et al.* (2008) estimated the earning functions and marginal internal rates of returns for different levels of schooling by using data for born men from household surveys in 1940-2000. The authors applied a general nonparametric approach to estimate the rates of returns by using tuition costs, income taxes and nonlinearities in the earnings schooling- experience relationship. The results also showed that there were comparatively larger returns to high school education as compared to college level of education. However, both were increasing over time.

Data and Methodological Issues

a) Data and Sources

The present study relies on the primary source of data that was collected by conducting survey during the year (2012) and necessary or required information obtained by interviewing the participants of cottage industry. We chosen to do a research because these urban areas absorbs majority of the informal workers and create employment. A sample of 124 female workers of cottage industry in the age group 18-64 years is randomly drawn. Most of the workers are females in the rural and urban areas of Southern Punjab. The aim of study is to analyze the economic behavior of the female workers engaged in the business of embroidery. We have tried to obtain information from all the workers but it was not possible due to certain social constraints. However, we succeed to approach almost participants for analysis.

b) Methodology

The present study is based on Human capital model followed by Becker (1962) and Mincer (1974). In our study, an econometric analysis of informal sector workers is modeled in the framework of the traditional human capital theory of Mincer (1957). In this study, the mincerian model has been estimated as used by, Burki and Abbas (1991), Sargana (1998) and Manda *et al.* (2002). However study also extended this Mincerian Earning Function by incorporating other variables. The model is as follows.

$$FHS = \alpha_0 + \beta_1 AGY + \beta_2 AGY^2 + \beta_3 EDUI + \beta_4 EDUII + \beta_5 EDUIII + \beta_6 EDT + \beta_7 INFDT + \beta_8 FSP + \beta_9 HHP + \beta_{10} PVRTY + \beta_{11} CHLD + \beta_{12} EXPND + \mu_i$$

Where

FHS= total number of hours supplied by female participant in cottage industry.

AGY= Age in complete years

AGY= Age-squared

EDUI= Primary Education

EDUII= Middle level Education

EDUIII= Matric Level Education

EDT= Technical Education

INFDT=Informal training (Days)

HHP=Household Headship

FSP=Family Set up (=1 if joint family, =0 otherwise)

PVRTY=Poverty Status (=1 if per capita income below poverty line, =0 otherwise)

CHLD=Children less than 5 years

EXPND= Household Expenditure

u_i = random error term

Results and Discussion

The study has made a statistical as well as an empirical analysis for female supply of labor hours in cloth embroidery.

a. Descriptive Analysis:

Now we made descriptive analysis.

Table 5.1: Summary statistics of explanatory variables for female Participants (18-64)

Variables	Mean	S. Deviation
AGY	42.33	10.09
AGY2	1892.85	834.41
EDUI	0.21	0.41
EDUII	0.27	0.45
EDUIII	0.15	0.36
EDT	4.03	0.20
INFTD	70.40	139.16
FSP	.80	.40
HHP	.17	.38
PVRTY	.36	.48
WWH	34.02	12.32
CHLD	.26	.58
EXPND	12113.31	8782.66

Table reveals the basic statistics of some variables. The table contains the mean and standard deviation variables which influence the supply of working hours of female participants in cloth embroidery. The average age of female participants is 42.33 years and its variability about mean is 10.09. On average, 0.21, 0.27 and 0.15 females have primary, middle and matric level of education. The analysis indicates that on average, there are 70.40 female workers who have some informal kind of skill training. On average, 4.0 respondents possess technical education. The female workers who belong to joint family set up are 80 percent on average. On average, 0.24 female workers of cottage industry have children less than five years.

(b) Empirical Analysis

We see the impact of personal, socio-economic and household variables on the female labor supply in informal sector by using Ordinary Least Square method. Results are presented in table 3.2.

Table 3.2: Regression Estimates of Female Labor Supply

Dependent variable is total number of hours supplied by female informal sector workers.

Variables	Coefficient	t-statistics
C	16.91	1.160
AGY	0.573	0.779
AGY2	-0.008	-0.889
EDUI	4.926***	1.597
EDUII	3.563	1.333
EDUIII	5.736***	1.723
EDT	17.631*	3.217
INFTD	0.012***	1.581
FSP	4.668***	1.782
HHP	8.477*	2.981
PVERTY	-6.136*	-2.713
CHLD	-0.4870	-0.281
EXPND	5.50E-05	0.4262
Sample Size(N) 124	F-Statistic 3.3601	
R-Squared 0.27	Probability 0.00034	
Adjusted R-Squared 0.19		

Note: Values are calculated using the data collected from Southern Punjab

*significant at 1% level

**significance at 5% level

***significant at 10% level

The results indicate that coefficient of age and age-squared are statistically insignificant. This negative and insignificant coefficient of age-squared shows the linear relationship between female’s labor hours and age.

Level of education is important as it indicates productivity potential. Results also point out that the coefficients of primary and metric level of education are positively significant. The probability of female’s hours supply and time allocation in productive activities increases by 17.6 percentage points due to one unit increase in technical education. The results conclude that education increases the labor supply and earnings which in turn reduce poverty.

Findings make clear that the coefficient of informal training, joint family set up and headship has positive and statistically significant impact on female’s hours supplied towards productive economic activities in cottage industry in Southern Punjab.

The study results point out that children under five years of age has a negative impact on the supply of labor hours but the results are insignificant. This phenomenon has strong substitution effect. The presence of children less than five years decreases the paid domestic and market work of female workers. This will induce a corresponding decrease in the female’s time allocation and participation in the market work, if male and female are substitutes. In our society, this can be interpreted as if the children and mother are the substitutes in production, it

implies that the children can substitute the mother's time in work-related activities at home, thus releasing the work for market work and vice versa (Khandkar, 1987).

Our findings also show that the probability of hours supplied increases because of one unit increase in household expenditures. However the coefficient is positive and statistically insignificant.

Conclusion

The present study investigates the determinants of female's hours supplied to the informal labor market by collecting data through sample survey. The results point out that education level and technical education are particularly crucial to improve the hours supplied. These variables are found to be positive and statistically significant. These variables have the similar results with above-mentioned authors.

Findings suggest that there is need to more investment in human and physical capital. The policies can be originated to encourage the growth of the cottage industry in rural and urban informal sector in Southern Punjab. The study suggests that there is need to chalk out policies and programmes in favor of well being of the population. The government should launch solid programs to protect these female workers from exploitations regarding human capital and financially. Moreover, the status of female workers should be upgraded and incentives should be given to these participants in cloth embroidery. There is a serious need to enhance the small and medium size industries. Finally formal and informal credit facilities should be given to these female participants of the informal labor market to develop this sector and generate more income domestically.

References

1. Azid, T., Aslam, M. and Chaudary, M. O. (2001). Poverty, Female Labor Force Participation, and Cottage Industry: A Case Study of Cloth Embroidary in Rural Multan. *The Pakistan Development Review*, 40(4), 1105-1118.
2. Ali. Karamat. (1990). Problems of Working Women in the Rural Informal Sector of Multan District. *The Pakistan Economic and Social Revie*, 33(2).
3. Aly, H. Y and Al-Quisi, I. (1996). Determinants of Women's Labour Force Participation In Kuwait.: A Logit Analysis. *The Middle East Business and Economic Revie*, 8(2),1-9.
4. Altug, S., and R. A. Miller. (1998). The Effect of Work Experience on Female Wages and Labour Supply. *The Review of Economic Studies* 65, 45-85.
5. Becker, G. S. (1965) Theory of the Allocation of Time. *Economic Journal* 76, 493-517.
6. Becker, G. S. (1974). A Theory of Marriage. In Theodore W. Schultz (ed.) *Economics of the Family*. Chicago: University of Chicago Press. 293-344.
7. Becker, G. S. (1981). A Treatise on the Family. Cambridge, Mass: Harvard University Press.
8. Beg, M. Afzal. (1973). A Review of Labor Force Participation Rates in Pakistan. *The Pakistan Development Review*, 12(4), 393-403.

9. Cogan, J. F. (1980). Married Women's Labour Supply: A Comparison of Alternative Estimation Procedure. In James P. Smith (ed.) *Female Labour Supply: Theory and Estimation*. Princeton, N. J.: Princeton University Press. 90–118.
10. Cogan, J. F. (1980a) Labour Supply with Fixed Cost of Labour Market Entry. In James P. Smith (ed.) *Female Labour Supply: Theory and Estimation*. Princeton, N. J.: Princeton University Press. 327–364.
11. Cogan, J. G. (1981) Fixed Cost and Labour Supply. *Econometrica*, 49(4), 997–1017.
12. Cohen, M. S., A. R. Samuel, and Robert I. Lerman (1970). A Micro Model of Labour Supply. Bureau of Labour Statistics, Washington, D. C. (Staff Paper No. 4.)
13. Das, B. M. (2003). The Other Side of Self-Employment: Household Enterprises in India. Social Protection Discussion Paper Series, No. 0318 September 2003, 1(34).
14. Fong (1975). Female Labour Force Participation in a Modernising Society. Malaya and Singapore 1921–1957 (Monograph); East West Population Institute, Hawaii.
15. Gronau, R. (1973). The Intrafamily Allocation of Time: The Value of the Housewives Time. *American Economic Review*, 68, 634–52.
16. Gronau, R. (1977). Leisure, Home Production and Work: The Theory of Allocation of Time Revisited. *Journal of Political Economy* 85, 1099–1123.
17. Hill, M. N. (1982). Female Labour Force Participation in Developed and Developing Countries: Consideration of the Informal Sector. *Review of Economics and Statistics*, 65, 459–68.
18. Klaauw, W. V. D. (1996) Female Labour Supply and Material Status Decision: A Life Cycle Model. *Review of Economic Studies*, 63, 199–235.
19. Khandker, S. R. (1988). Determinants of Women's Time Allocation in Rural Bangladesh. *Economic Development and Cultural Change*, 111–126.
20. Kozel, V and Alderman, H. (1990). Factors Determining Workshop at Labour Supply Decision in Pakistan's Urban Areas. *The Pakistan Development Review*, 29(11), 1-18.
21. Mincer, J. (1962). Labour Force Participation of Married Women: A Study of Labour Supply. In H. G. Lewis (ed.) *Aspects of Labour Economics*. Princeton, N. J.: Princeton University Press. 63–97.
22. Sather, Z. A and Shahnaz. Kazi (1988). Productive and Reproductive Choices of Metropolitan Women: Report of Survey in Karachi, Islamabad, Pakistan Institute of Development Economics Islamabad.
23. Shah, N. M. (1975). Work Participation of Currently Married Women in Pakistan: Influence of Socio-economic and Demographic Factors. *The Pakistan Development Review*, 14(4), 482.
24. Yusuf, F., and D. K. Burgis. (1979). Female Participation in the Labour Force of Selected Latin American Countries. *The Pakistan Development Review*, 18(3), 215–229.