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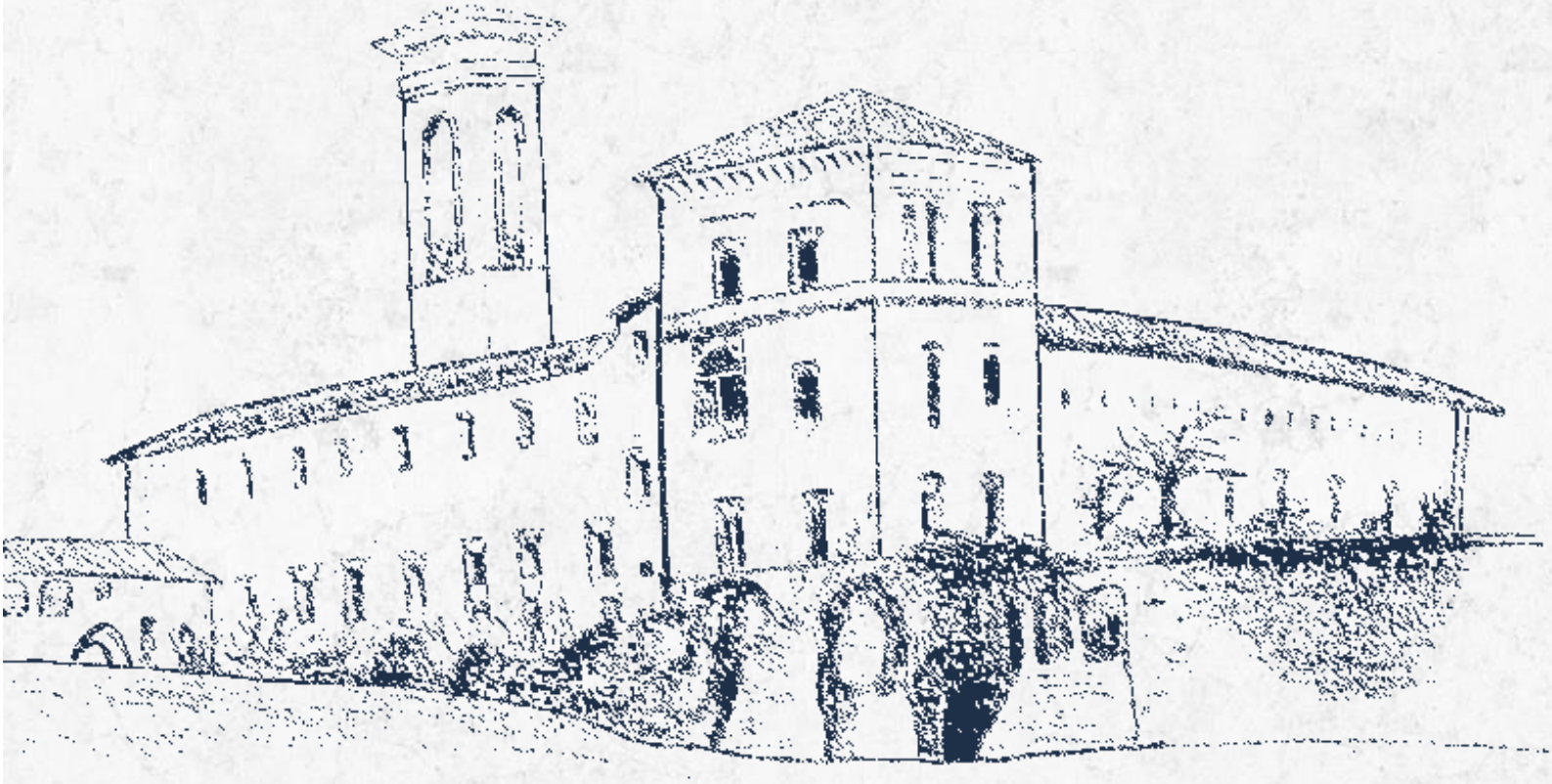

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The Social and Economic Problems of Home-based and Outdoor Working Women in Punjab, Pakistan

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Abstract

Purpose – The purpose of this paper is to investigate the social and economic problems of home-based (indoor) and outdoor working women in Pakistan.

Design/methodology/approach – The paper analyses the literature on the binary logistic regression analysis and the maximum likelihood estimation method. The data were collected through a questionnaire from 1500 women workers in urban and rural areas of Punjab, Pakistan using simple random sampling technique.

Findings – The results of the logistic regression analysis showed that the education, husband's education level, satisfied work, get work, attitude, equal pay, harassment, burden and comments are statistically significant.

Research limitations/implications – While conducting the survey to the workers, some difficulties have been occurred because many women workers are illiterate. Beta regression analysis can also be used to improve the study in the future studies.

Originality/value – The paper analyses for the first time the problems of women workers in Punjab, Pakistan using the binary logistic regression analysis.

Paper type – Research paper

Keywords – *Home-based work; Women; Employment; logistic regression analysis; Economic Development.*

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1. Introduction

Employment is a fundamental requirement for the individuals and development of a country. The women workers in Pakistan have experienced disadvantages relative to men within the same class. Social and cultural factors have historically kept the most women from entering the job market. On the other hand, many women find job due to the recent changes in society caused by increased economic pressures, expansion of educational facilities and increased access to learning (Hussein, 2009).

Social and economic problems have a huge impact on both women workers Women in Pakistan were generally assumed a non-productive part of the population. Although the studies provide the evidence of the growing share of the women's work in the economy, the women have poor working conditions in Pakistan. There are two types of women workers in Pakistan: home-based and outdoor working women. The term "home-based worker" means women who work in their homes with the work sourced from the middle men.

Home-based work constitutes a significant part of an informal economy. In the South Asia, the number of home-based workers is estimated at over half a billion, the majority of them (80%) are women workers (Homenet Pakistan, 2005). In Pakistan, almost 80% of total labour force is engaged in informal sector and more than 50% of this consists of women. Approximately, 77% to 83% of the women in informal sector are home-based workers (Homenet Pakistan, 2005).

The financial and social condition of home-based women workers were compared by Kazi and Raza (1989) with the other women who do work outside in the region of Karachi, Pakistan. They collected data through a questionnaire from 1000 married women at the age group of 19-50 years in Karachi. They found that home-based women workers were considered the lowest group among females in low level occupations.

Cheema and Yasmeen (2003) showed the problems of women in garment factories Faisalabad, Pakistan. A survey was conducted with three different textiles mills in Faisalabad and 150 women workers were selected through purposive sampling technique. They concluded that women faced different problems like harassment, bad attitude of supervisors and mental torture from family members.

Nazly et al. (2004) discussed that there were no association between the women education and their awareness about abuse by the middleman in home-based industry. The data were selected from 150 respondents through purposive sampling. The results showed that home-based women workers were mostly illiterate but they were aware about their abuse by the middleman.

Ozguler (2012) investigated the working condition of home-based women workers in Turkey. The data was collected through a pilot survey in Eskisehir, Turkey. He pointed out the attitude, importance of women and their expectations towards home based work.

Labour force data from Pakistan Bureau of Statistics and World Bank found that labour force participation of women in Pakistan, as percentage of total women workers and the percentage of total countries work force, was below when compared to the international standard and developed countries (Sarwar and Abbasi, 2013). It was also found that the majority of women were accumulated in informal sectors mostly in agriculture. They mentioned that the gender discrimination was ingrained in political, legal, economic and cultural factors that adversely affect the status of women, limit the employment opportunities and employment options for women.

Hassan and Azman (2014) showed the financial and socio-cultural causes which were effective on home-based women workers. They conducted a survey with home-based women workers at the age group of 20-60 years in Lahore, Pakistan. They faced some difficulties while conducting the survey because many women workers were illiterate. The empirical results showed that the major problems faced by home-based women workers were gender difference, low-income, low education level, socio-cultural barrier and poverty.

Several researchers claimed that participation of women in economic activities outside their homes could help them achieve political and social liberation (Sawar and Abbasi, 2013). The perceptions of the families that girls were going to contribute family income, leads to the greater investment in their health and education (Roos, 2008). Women employment was linked to low fertility rates and greater trends of family planning, thus helping to control the population of country (Brewster and Rindfuss, 2000). Some studies showed that women working outside their homes gain more self-confidence, independence, influence over families and awareness about health and enhanced social activities (Awan, 2015; Kabeer and Mahmud, 2004; Iversen and Rosenbluth, 2006).

The aims of the study are (i) to examine the profile, type and nature of work undertaken by home-based women workers; (ii) to analyze the main challenges faced by the home-based women workers including low wages, invisibility, gender disparity and mainstreaming of their contribution in the national economy; (iii) to determine the level of awareness of the home-based women workers regarding their rights, micro credit schemes and market trends. The paper is organized as follows: In Section 2, an overview of the logistic regression analysis is presented. A description of the survey about women workers in Pakistan, the descriptive statistics of the variables and the results of

the study are given in Section 3. Some concluding remarks are presented in Section 4.

2. Methodology

Logistic regression analysis is used to distinguish between two or more groups. The binary logistic regression analysis is conducted when there are only two categories of the dependent variable. Typical application areas are cases where one wishes to predict the likelihood of an entity belonging to one group or another, such as in response to a marketing effort (likelihood of purchase/non-purchase), credit worthiness (high/low risk of default), insurance (high/low risk of accident claim), medicine (high/low risk of some ailment like heart attack), sports (likelihood of victory/loss).

A regression analysis is performed with a transformed value of Y, called the *Logit* function. The equation, which is shown below for independent variables, is given by

$$\text{Logit}(Y) = \ln(\text{odds}) = b_0 + b_1 x_1 + \ldots + b_n x_n \quad (1)$$

where "ln (.) " is the natural logarithm, " b_0 " is the intercept, " $b_i, i = 1, 2, \ldots, n$ " are the regression coefficients and " $x_i, i = 1, 2, \ldots, n$ " are the independent variables. Here, odds refer to the odds of Y being equal to 1. Odds is defined as the probability of belonging to one group divided by the probability of belonging to the other ($\text{odds} = p/(1-p)$). Here, "p" is the probability that shows if trait is present in observation i.e. $P(Y=1)$ and "1-p" is the probability that shows if trait is not present in the observation i.e. $1 - P(Y=1)$.

In the binary logistic regression analysis, is an indicator of the change in odds resulting unit change in the predictor. They are the odd ratios for the predictor. Furthermore, the Wald statistic checks whether the coefficient b for the predictor is significantly different from zero. If the coefficient is significantly different, it can be assumed that the predictor has a significant contribution to the prediction of outcome.

As seen in Eq.(1), the right-hand side is a linear function that does not guarantee values between 0 and 1. By taking the exponent of each side of the equation to get $\text{odds} = e^{\ln(\text{odds})} = e^{b_0 + b_1 x_1 + \ldots + b_n x_n}$ and dividing both sides of this equation by (*1+odds*), we obtain

$$\text{odds}/(1+\text{odds}) = e^{b_0 + b_1 x_1 + \ldots + b_n x_n} / (1 + e^{b_0 + b_1 x_1 + \ldots + b_n x_n}). \quad (2)$$

Then, we have

$$p = e^{b_0 + b_1 x_1 + \ldots + b_n x_n} / (1 + e^{b_0 + b_1 x_1 + \ldots + b_n x_n}). \quad (3)$$

This equation yields p, the probability of belonging to a group (Y=1) rather than the log of the odds of the same. Note that the right-hand side of equation (3) can only yield values that are between 0 and 1 (Maalouf, 2011).

While the linear models use the ordinary least squares (OLS) estimation of coefficients, the maximum likelihood estimation (MLE) technique is used for the logistic regression analysis (Luo and Wang, 2008). In other words, it tries to estimate the odds that the dependent variable values can be predicted using the independent variable values. This is done by starting with a random set of coefficients, and then iteratively improving them based on improvements to the "log-likelihood" measure (Zuhair and Hussain, 2015). After a few iterations, the process stops when further improvement is insignificant.

3. Results

In this study, a questionnaire based survey was conducted with 1500 women workers at the age of 18-62 years in urban and rural areas of Punjab, Pakistan. The questionnaire was replied by 1096 outdoor and 404 home-based women workers. Simple random sampling technique was utilized to gather information. Then, the binary logistic regression was applied to find out the problems of the home-based and outdoor working women workers. SPSS (Statistical package for the Social Science) version 21 with 5% level of significance was used for statistical analysis.

The binary logistic regression analysis was performed taking type of labour (home-based and outdoor women workers) as the dependent variable. The dependent variable, type of labour, has two categories where 0 indicates "home-based" while 1 shows "outdoor" worker.

Age, income, education, pay on time, harassment, burden, place of residence, get work, equal pay, comments, family support, satisfied work and attitude were chosen as the independent variables. Descriptive statistics for the variables age, income and daily working hours are given in Table 1.

Table 1. Descriptive statistics of the variables age, income and daily working hours.

	N	Minimum	Maximum	Mean	St. Deviation
Age (Year)	1500	18	64	35.77	8.647
Income (Monthly)	1500	2000	10000	5595.47	1847.651
Daily working hours	1500	1	4	2.65	0.697

As seen from Table 1, the mean age of respondents is 36 years, the maximum age is 64 and the minimum age is 18. The mean income is 5596 and the maximum daily working time is 4 hours. The frequencies of the other independent variables are given in Table 2.

Table 2. The frequencies of the other independent variables

		Frequency	Percent (%)
Education	Illiterate	1181	78.6
	Educated	319	21.4
Husband's Education	Illiterate	935	62.3
	Educated	365	37.7
Satisfied Work	Yes	792	53.0
	No	708	47.0
Get Work	Yes	524	35.0
	No	976	65.0
Attitude	Non Cooperative	375	25.0
	Cooperative	1125	75.0
Equal pay	Yes	434	28.9
	No	1066	71.1
Pay on time	Yes	1346	90.0
	No	154	10.0
Harassment	Yes	115	8.0
	No	1385	92.0
Family Support	Yes	1005	67.0
	No	495	33.0

Burden	Yes	1222	81.5
	No	278	18.5
Comments	Yes	261	17.4
	No	807	53.7
	Sometimes	432	28.9

As seen in Table 2, most (78.6%) of the workers and their husband's (62.3%) are illiterate. In Asia, particularly in Pakistan, India and Bangladesh, the education profiles of home-based workers, predominantly that of women, remains low (Bajaj, 1999). Very few women enter formal school and thus remain illiterate (Hiralal, 2010). It can be inferred from the relevant literature that illiteracy has badly affected the status of home-based women workers. 53% of the women workers satisfies from their works. The vast majority (65%) of workers doesn't get works easily. As seen from Table 2, 75% of the workers deal with a cooperative attitude of colleagues/owner. The percentage of workers who gets equal pay is 28.9%. Most (90%) of the workersget their salaries on time and many of them (92%) do not feel sexual harassment while working. The percentage of workers who takes support from family is 67% and the percentage of the workers feeling the effects of the double burden is 81.5%. 53.7% of the labours meet the comments of people.

To show the effects of these independent variables on the dependent variable, the following logistic regression model is used:

$$\ln(p/1-p) = b_0 + b_1x_1 + \ldots + b_{14}x_{14}$$

where the variables are defined as follows:

$\ln(p/1-p)$= The log odds of type of labour,
X_1 = age (age in years),
X_2= income (monthly income of respondents),
X_3= daily working hours,
X_4= education,
X_5= husband's education,
X_6= satisfied work (respondents satisfied with work or not),
X_7=get work (respondents get work regularly and easily or not),
X_8= attitude (cooperative or non-cooperative attitude of colleagues/owner),
X_9= equal pay (respondents get equal pay or not),
X_{10}= pay on time (pay on time or not),
X_{11}= harassment (feel sexual harassment or not on work place),
X_{12}= family support (family support their work or not),
X_{13}= burden (feel double burden or not),

X_{14}= comments (people draw comments or not).
The Omnibus tests of model coefficients show that the model with these independent variables performs better predicting the outcome or not. It has the null hypothesis that intercept and all coefficients are zero. As seen from Table 3, p-value is statistically significant and we can reject this null hypothesis. Hence, the variables included in the model are better.

Table 3. Omnibus tests of logistic model coefficients

	Chi-square	df	Sig.
Step	-1.878*	1	0.171
Block	722.349	9	0.000
Model	722.349	9	0.000

* A negative Chi-square value indicates that the Chi-square value has decreased from the previous step.

Table 4 includes the values for-2 Loglikelihood, Cox&Snell's R^2 and Nagelkerke's R^2. It can be seen that Nagelkerke's R^2 is 0.624. Cox&Snell's R^2 is 42% and shows that the probability of being outdoor women worker is explained by the logistic model.

Table 4. Summary of logistic regression model.

-2 Log likelihood	Cox & Snell's R^2	Nagelkerke's R^2
772.100	0.425	0.624

The classification results in Table 5 shows that the model is resonably good with 86.7% overall percentage.

Table 5. Classification table

Observed		Predicted		
		Type of Labour		Percentage Correct
		Home based	Outdoor	
Type of Labour	Home based	225	114	66.4
	Outdoor	60	905	93.8
Overall Percentage		86.7		
a. The cut value is .500				

Table 6 also includes the test of significance for each of the coefficients in the logistic regression model. For small samples the t-values are not valid and the Wald statistic is used. The Wald statistic is basically t^2 which is Chi-Square

distributed with df=1. However, SPSS gives the significance levels of each coefficient. Logistic regression results with backward selection is presented in Table 6.

Table 6. The results of the logistic regression model.

	Regression Coefficient	S.E.	df	Wald Statistics	P-value	Exp(B)
Education (X_4)	0.001	0.000	1	83.691	0.000	1.001
Husband's Education (X_5)	-0.385	0.156	1	6.103	0.013	0.680
Satisfied Work (X_6)	-1.783	0.216	1	68.177	0.000	0.168
Get Work (X_7)	0.555	0.208	1	7.073	0.008	1.741
Attitude (X_8)	-1.876	0.299	1	39.437	0.000	0.153
Equal pay (X_9)	1.778	0.265	1	45.110	0.000	5.917
Harassment (X_{11})	4.656	1.140	1	16.678	0.000	105.222
Burden (X_{13})	2.970	0.301	1	97.610	0.000	19.492
Comments (X_{14})	0.667	0.120	1	30.977	0.000	1.948
Constant	-2.856	0.502	1	32.355	0.000	0.058

Table 6 gives the regression function as $-2.856 + 0.001X_4-0.385X_5-1.783X_6+0.555X_7-1.876X_8+1.778X_9+4.656X_{11}+2.970X_{13}+0.667X_{14}$. As seen in Table 6, of the 14 independent variables, 9 variables were found most significante. Education of worker, husband's education, satisfied work, get work, attitude, equal pay, harassment, burden and comments are statistically significant, showing that these independent variables have impact on the model while age, income, daily working hours, pay on time and family support have no impact on the model because they are not statistically significant. So, it is found that the socio-economic factors that effect on type of labour (home based or outdoor) are education, husband's education, satisfied work, get work, attitude, equal pay, harassment, burden and comments.

Table 6 also shows the positive association between education of labour and type of labour. Educated labours generally work outdoor. On the labour market, education provides both productive capacities to individuals and their signals to potential employers hence, attained qualifications are a main asset in worker competition for jobs available on the labour market (Gangl, 2000). Better-educated people typically have lower unemployment (Stiglitz et al., 2009) as, regularly, unemployment rates decline with increasing levels of qualifications (Gangl, 2000).

There is a negative association between husband's education and type of labour. Papps (2010) found that a married woman's work hours might be

related to her husband's education, even controlling for his wage rate. He suggested that women's work hours were positively related to spousal education at the time of marriage but also fall more rapidly over time after marriage among those with the most educated husbands. Men's education is found to influence their wives' work hours, even when holding the wages of both spouses constant. Papps (2010) also found that wives of well-educated men withdraw from the labour market more rapidly than other women after marriage.

The results of this study show that home-based laborers in Pakistan are more satisfied from their work than outdoor laborers. Home-based women workers had a substantially higher job satisfaction compared to those who were not able to work at home and their job attrition rates dropped a whopping 50%. Table 6 also shows that there is a positive association between get work and type of labour. Women who work outside get work regularly and easily.

Table 6 clearly indicates that there is a negative association between attitude and type of labour. Outdoor laborers deal with some non-cooperative attitude of colleagues/owners. Not surprisingly, this study also finds that women working outside get equal pay relative to home based workers in Pakistan. Saeed (2014) found that women homebased workers earn substantially less than those women who work outside the home in Pakistan.

Home-based work is expected to feel sexual harassment than work done outside the home; hence the relationship between the outdoor work variable and type of labour is expected to be positive. In the same way, the other variables (burden and comments) have a positive relationship with type of labour. Outdoor workers feel more double burden than the home-based women workers in Pakistan. Table 6 shows the positive association between comments and type of labour and it is statistically significant.

4. Conclusions

Women occupy an important role in economic development. In different countries of the developing world women constitute a greater or lesser contribution to the economy, depending on the stages of economic development and cultural traditions. Pakistan, being one of such countries, where low literacy levels and restriction on economic activities of women have acted as major constraint towards full utilization of their human potential.

The purpose of this present study was to identify the problems of home-based and outdoor women workers. It can be concluded that the women workers play dual role inside and outside their homes. The major problems that faced both type of women worker during work are education, husband's education,

satisfied work, get work, attitude, equal pay, harassment, burden and comments.

The findings of the study indicated that home-based women workers are invisible and unrecognized, bound by socio-cultural barriers, lacking awareness and access to fundamental human rights and social protection facilities, living and working in extremely miserable conditions. Specific findings with respect to gender discrimination and disparities being faced by home-based women workers.

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