FACTORS AND CONSTRAINTS AFFECTING LABOUR FORCE PARTICIPATION OF POSTGRADUATE WOMEN: THE CASE OF BAHAUDDIN ZAKARIYA UNIVERSITY MULTAN, PAKISTAN

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Abstract. This paper attempts to explore the factors and constraints affecting labour force participation of women having post graduation in Pakistan, using logit model based on primary data. The trend of women's labor force participation is improving over time in Pakistan but it is still very low in comparison with other developing countries. The empirical results for all variables are consistent with the existing hypotheses and are significant. The decision of women to join labour force are not only dependent upon their personal choice and achievement but also on their husband's and father's education, their attitude towards female employment and also on family characteristics which include the profession of respondent's father, mother or husband's profession. There is an ardent need to bring some significant changes in the social values of the family and society's attitudes to enhance women's participation in labour force through quality education. Government should develop policies that become the cause to encourage participation of educated women in the labour force of the country for multidimensional solutions.

1. Introduction

Women labour force participation is one of the imperative issues of economic development and is receiving steady escalating prominence and

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recognition in the literature especially since the 1970s. Until the 1970s, development was generally assumed gender-neutral and of equal benefits to both men and women but after that number of studies demonstrated that gender inequality exists in terms of various factors and has varying impacts of development (Boserup 1970; Kabeer 1994; Karl 1995; Rao 1991). A great majority of women is facing discrimination, socio-economic exploitation, participatory exclusions and not only having access to assets and land rights but no decision making even on their own earnings especially in South Asia. They have deprivation of basic existing facilities of social development (Agarwal 2001, 2003; Chaudhry 2007; Mahmood and Nayab 1998; Panda and Agarwal 2005; Siddiqui and Siddiqui (1998); Siddiqui 2001). Nevertheless, they are struggling for social justice, batter health care facilities, equal rights and job opportunities in all over the world but especially in developing countries. Females in most of cities and rural areas lag behind due to a lot of obstacles and hurdles from both demand and supply sides in Pakistan. Due to their low social, economic and political status in the society as compared to their male counterparts, Pakistani females have been trapped into the web of dependency, subordination and low access to decision-making. The majority of females suffer from all forms of poverty (Siddiqui 2001). Females are almost half of the population in Pakistan and there is ardent need of their active participation in every field and economic activities.

The promotion of gender equality and women's empowerment is one of the Millennium Development Goals (MDGs) that have been framed by the United Nations in 1999 and agenda will be implemented by the end of 2015. Keeping in view the importance of the issue, women's role in socio-economic development is an indispensable fact and incomplete without their participation and contribution. Gender participation is not only helpful for their own wellbeing and decision-making but also worthwhile for more inclusion and sustained economic growth especially in developing countries like Pakistan. Education plays an important role in human capital formation and it has become one of the defining enterprises of the 21st century with the emergence of globalization and increasing global competition. It raises the productivity and efficiency of individuals and thus produces skilled work force that is capable of leading the economy towards the path of sustainable economic development (Chaudhry, 2007). Since attainment of education is the key factor for better employment opportunities and jobs across the sectors, but investment in the education of women and providing them job facilities are most effective means of raising household's level of earnings and especially promoting sustained economic growth. According to several studies by International Agencies, including the World Bank, UNESCO and the United Nations Development Program, there is positive correlation between improved educational opportunities for females and their labor force participation in developing countries. Nevertheless, question arises that why the women having higher education are not participating actively in the labour force.

While higher educated women are very vital part of labour force of any country, they can play a significant role in the economic development of any country especially in Pakistan. The major objective of this paper is to highlight the factors that affect the participation of higher educated women, using logit model analysis based on primary data. This paper is arranged as follows. Section 2 states the brief theoretical and empirical literature on women labour force participation. In section 3, profile of women labour force participation in Pakistan is stated. Data

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and methodological issues discussed in section 4. Section 5 produces the results and discussions. While conclusions and policy implications presented in section 6.

2. Theoretical and empirical literature

The neoclassical paradigm, which focused on male full-time labour in the capitalist manufacturing sectors, paid no attention to women labour but in response to the growing importance of women in the labour market, it has extended analysis to women's problems since the 70s. Substantial literature exists on the rationales worldwide that address the issues of gender labour force participation. The initial descriptions of female labour force participation come from the household economics, an extension of neo-classical economics, initiated by economists such as Jacob Mincer (1962), Garry S. Becker (1965), Glen G. Cain (1976), R. Gronau (1977) and G. Standing (1978). Mincer attempted to answer the question with the focus on the supply characteristics of married women. He argued that the decision whether the wife should enter the paid labour force or not could involve not only the income and substitution effects of market work versus leisure but also the income and substitution effect of market versus unpaid house work. Cain tried to explain the difference in the labour force activity of white and non-white married women based on Mincer's model using various sources of aggregate and disaggregate data. Becker (1965) and Bowen and Finigen (1969) elaborated the basic economic theory of the household. Their theory rests upon the assumption that the household is a consumer as well as decision-making unit. The decision-making process aimed at maximizing the well-being of the household, which is constrained by time and financial constraints. Neoclassical economists considered education to be one of the key determinants of women entering the labor market and women having higher level of education will have greater participation in the labor market.

Empirical studies frequently use a woman's market-wage offer (substitution effect), her husband's earnings and family non-earnings income (income effect), her schooling, work experience, number of children and other family background as variables to explaining female labour supply. Several studies conducted in developed countries have identified the strong influence of household characteristics on the labour force participation of women (Gronau 1978; Heckman 1974, 1980; Lustig et al. 1979; Mason and Palan 1981; McClendon 1976; Presser and Baldwin 1980; Schultz 1980, 1990; Smock 1981; Treiman and Terrel 1975). A detailed survey of theoretical and empirical research is given in Killingsworth (1983) and Heckman and Killingsworth (1986).

Hill (1983) developed a labour participation multinomial logit model to estimate an individual's choice between working in the formal and informal sector and not participating in the Japanese labour market. This study suggests that female labor participation behavior varies between the formal and informal sectors. Tiefenthaler (1994) uses the same methodology to analyze female labour participation on Cebu Island and Philippines. Labour force participation decisions result from choosing between the formal sector, informal sector, contract sector and non-participation. The findings from this study support Hill's (1983) findings. Collier (1994) concluded that gender discrimination against women in the labour market is usually identified with wage differentials in developed countries while it comes into the view from differential access to wage employment in developing countries. The literature concludes that there are many constraints, economic and

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non-economic, to women labour force participation. While the social and cultural constraints are prominent among the non-economic restrictions that usually women face, are changing but still women are not as free as men participate in the formal economies of South Asia (Drèze and Sen, 1995; Dunlop and Velkoff, 1999).

The World Bank (2001), in its publication "Engendering Development: Through gender equality in rights, resources, and voice" emphasized on gender equality to be an important part of development strategy that enable people to escape poverty and improvement their standard of living. This book also asserts the role of an institutional environment that provides equal rights and opportunities for both men and women. Evidence from a range of countries suggested that investments in females (education, jobs, and other equal rights) is necessary to empower them and then to achieve gender equality.

Keeping in view the citation of theoretical and empirical literature, we now come to the experience of Pakistan. There are a large number of studies on female labour force participation in Pakistan since the late 1960s. Farooq (1968) examined the labor-force participation in Pakistan for the period of 1901 to 1961. Data for the period 1951 and 1961 were based on the two censuses taken in Pakistan for those dates, and the data for the period 1901 to 1931 were derived from a detailed analysis of the district-by-district reports from the Indian census for the areas now the part of Pakistan. The study favored the expansion of educational opportunities, female employment and urbanization. It suggested that the increased level of female employment might reduce the effective dependency load placed upon the male labor force in Pakistan. Shah (1975) explicates the socio-economic and demographic factors affecting the work participation of married women in Pakistan. Nasra et al. (1976) analyzed the inter-district criteria in overall as well as non-agricultural females labor supply using the data of 1961 census. There was inclusion of many variables and found differentials in the correlations of female labour force participation. Irfan (1983) also analyzed the determinants of female labor force participation. Empirical results of his study indicates that higher level of education significantly influence the female labor force participation, but only if they participate as an employee. Household per capita income is correlated with wage employment but self-employed women appear to be unaffected.

Junaid (1984) pointed out the problems of educated women that they have to face in economic participating activities and the categories of jobs for women. It is also concluded that in Pakistan, women are not permitted to work with men. Traditionally women are economically and socially dependent, so there is immense pressure on qualified women either to limit the scope of their activities or to permit the absorption of their contribution to the family income without acknowledgement. Shah (1986) analyzes the factors affecting change in female's role in Pakistan. Afzal and Nasir (1987) highlight the factors of declining trends of female labour force participation in Pakistan. Ali (1990) analyzed the role and problems of the female labor force in the rural informal sector of Multan District. Kozal and Alderman (1990) studied the factors determining work participation and labor supply decision in the urban area of Pakistan by using OLS regression as well as a Tobit model. Empirical results of this study indicate that labour force participation rate rises with the increase in expected earnings, wages and the level of education. Hamid (1991) analyzed the determinants of female labor supply using micro data. She concluded that household income is a primary determinant of women's entry in the labor market and is inversely related to women's supply in the

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labor market. While the effects of educational levels on women's labor force participation rate were different; illiterate women's participation was 44 percent, having Primary and Middle educational level women's participation rate above 30 percent, having matric level education women's participation rate was 60 percent and at F.A. & B.A. level participation rate was 50 percent. Kazi and Raza (1991) studied the changes over time in the level and pattern of women's employment in Pakistan and analyzed these changes in the context of supply and demand factors influencing women's participation in the labor market. Ashraf and Ashraf (1993) analyzed the male-female earning differentials in Pakistan based on Household Income and Expenditure Survey from 1979 to 1985-86. The results indicated that significant decline in the gender-earning gap between this period in every province.

Sultana et al. (1994) analyzed the factors affecting optimum time allocation between market and housework of female in rural Pakistan. The study examined, whether women's decisions not to work outside the home are influenced by social norms (purdah and patriarchy), or by economic constraints such as lack of relevant education and training, non-availability of job opportunities and low wages etc. The study concluded that the labor force participation decision of rural women is mostly influenced by cultural constraints and low job opportunities. Chaudhry and Khan (1996) elucidate the fundamental explanations and policy implications of female labour force participation in rural Pakistan. Mehmood and Nayab (1998) studied the gender dimensions of demographic change in Pakistan. Siddiqui and Siddiqui (1998) decompose the earning differential in terms of differences in personal characteristics and differences in the labor market. The results show that after adjusting for differences in individual characteristics, discrimination accounts for about 20 percent of the earning differential. Ali and Hamid (1999) analyzed the role and contribution of the female labor force in the rural informal sector of Punjab and pointed out the problems of females. Mirza (1999) made a qualitative survey of female office workers in Lahore in 1996-97 and examined the increasing market integration of women. The study showed that women have to face many problems on the gender basis with relations to their colleagues. Female office workers use many strategies, derived from their own life world; to maneuver in the office sector, to appropriate public (male) space, and to accommodate the purdah system to the office environment and in this way they are able to establish themselves in a traditional male field of employment. Ali (2000) presented a case study to identify the impact of Structural Adjustment Policy/Programs (SAPs) on the welfare of urban working women and their household in Pakistan.

Siddiqui (2001) concluded that though female labour force participation rates, literacy rate, and access to credit and health facilities, though rising, but still these are very low. She also concluded that gender discrimination in the labor market did not change significantly in Pakistan but poverty among male and females increased during 1993/94 and 1996/97. Weiss (2001) made a study on women empowerment and concluded that in this age of globalization, poverty and debt problems can be tackled with the empowerment of women by providing them better education and decent paying jobs. Naqvi and Shahnaz (2002) linked two important aspects of women's decisions regarding their participation in economic activities and how these decisions are made using Probit and Logit models based on the data from "Pakistan Integrated Household survey (PIHS), 1998-99". The study concluded that age, better education, responsibilities, and family style affect the female labor force participation decisions. Hafeez and Ahmad (2002) also

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studied various socio-economic and demographic factors, which influence the decision of educated married women about participating in the labor market using Logit and Probit models based on primary data. Chaudhry (2007) investigates the impact of gender inequality in education on economic growth during the period 1970-2005 using econometric analysis. The results suggest that gender inequality in education directly and significantly affects economic growth by lowering the average level of human capital.

It is evident from the empirical literature that there is a positive correlation between education and female labour force participation. Now a days a large enrolment rate in the higher education in Pakistani institutions should lead to increase their participation in the labour market effectively but the results are not encouraging so far. The question arises that why higher educated women are not properly contributing in economic growth of the country. What are the constraints on their participation even having higher education? There is no empirical work on this ground and requires an empirical study especially in the country like Pakistan. Thus, this paper fills the gap in literature to address and analyze the constraints on the participation of university educated women in labour market.

3. Women and the labour market in Pakistan: profile and trends

The issue of gender labour force participation has attained a special consideration in the agenda of development policies in developing countries like Pakistan for the last several years. There is considerable diversity in the status of women across provinces, regions, classes and families. The status of women is not homogenous because of the interaction of gender with other forms of exclusion in the society in Pakistan. There is considerable diversity in the status of women across classes, region and the rural/urban divide due to uneven socioeconomic development and the impact of tribal, feudal and capitalist social formations on women's life. Gender is one of the organizing principles of Pakistani society. Patriarchal values embedded in local traditions and culture predetermines the social value of gender. An artificial divide between production and reproduction, created by the ideology of sexual division of labor, has placed women in reproductive roles as mother and wives in the private arena of home and men in a productive role as breadwinners in the public arena. This has lead to low level of resources, investment in women by the family and the state.

Pakistan's labor market is facing four major challenges like other economies in South Asia. The first challenge indeed, is the creation of work opportunities to a level (labour force demand side) that is at least proportionate with absorbing fresh entrants into the labor market- estimated to be over a million. The generation of employment opportunities indeed would demand an adequate consideration of the creation of conditions for "decent work" thus focusing on the quality of jobs and work opportunities that are being generated in terms of income, productivity, better working conditions and respect for fundamental rights at work. The second challenge relates to tackling the low absorptive capacity of the formal sector and a declining employment elasticity of the economy. This phenomenon is posing a serious challenge to policy makers. Third challenge belongs to reduce the gender bias in employment opportunities. The last and most important challenge is to confiscate of constraints on women's labour force participation for inclusion and improving economic growth. However, still this is not considered as a challenge at

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the government level and not a significant effort can be seen in the literature addressing this issue.

We present a brief glance at the current labor market situation and some of the recent developments in terms of trends and profile in Pakistan. The trends in population and labour force participation rates based on the Labour Force Surveys data from 1996-97 to 2005-06 are presented in Table 1. The population, estimated at 155.37 million, is growing at the rate of 1.90 percent annually. Pakistan's population is characterized by high fertility rates and dependency ratio as almost one-third (30 percent) of the population is below 10 years of age and another 12.9 percent is in the age group of 10-14 years.

Table 1. Population, Labor Force and Labor Force Participation (LFP) Rates

Years	Population		Labor Force		LFP Rate
	Total (Million)	Growth Rate (Percent)	Total (Million)	Increase (Million)	(Percent)
1996-97	126.72	2.61	36.30	1.57	28.6
1997-98	129.97	2.41	38.20	1.90	29.3
1999-00	136.01	2.23	39.4	1.20	29.4
2001-02	145.80	2.06	42.39	2.99	29.6
2003-04	148.72	1.90	45.23	2.84	30.4
2005-06	155.37	1.90	50.05	4.82	32.2

Source: Labor Force Survey, various issues

The labor force of Pakistan is estimated at 50.05 million with participation rate of 32.2 percent during 2005-06. It increased from 45.23 million to the current level by adding 4.82 million men and women in two years. The current situation, nevertheless, informs about a high dependency ratio. It is important to point out that the labour force participation rates, though low, are gradually increasing over the years. The rural- urban participation rates for the last ten years also show a gradual rise for both men and women as reported in table 2. An increase of 3 percent in the urban areas is dominated by males (4.4 percent for males as compared to 2 percent for females) while females dominate (5.5 percent of females as compared to 2.7 percent of males), almost 4 percent increase in rural areas. The higher increase in the participation rates in the rural areas, especially for females, and of males in urban areas are largely attributed to a positive outlook of the economy. A large proportion of the current labor force does not possess skills measurable in higher education terms. Literacy level is low, 52 percent, given in table 3. The educational distribution of literates shows that 35 percent are below matric, 10 percent are matriculates and 4.1 percent have higher secondary certificate. The degree holders account for only a small (3.8 percent) proportion. Educational attainment of females is lower than males in all categories.

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Table 2. Crude Labor Force Participation Rates by Region and Gender (Percent)

Year	Total			Urban			Rural		
	Both	Male	Female	Both	Male	Female	Both	Male	Female
1996-97	28.7	47.0	9.0	27.2	46.6	5.9	29.4	47.2	10.5
1997-98	29.4	48.0	9.4	27.0	47.1	5.3	30.6	48.4	11.5
1999-00	29.0	47.6	9.3	27.1	46.5	6.3	29.8	48.2	10.7
2001-02	29.6	48.0	9.9	29.1	48.9	7.3	29.9	47.6	11.1
2003-04	30.4	48.7	11.2	29.2	49.8	7.0	31.0	48.2	13.2
2005-06	32.2	50.3	13.3	30.2	51.0	7.9	33.2	49.9	16.0

Source: Labor Force Survey, various issues

Table 3. Education and Literacy by Gender of Working Age Population (Percent)

Education and literacy	2003-2004			2005-2006		
	Total	Male	Female	Total	Male	Female
No formal education	0.6	0.7	0.5	0.3	0.3	0.2
Below Matric	33.7	41.1	26.0	35.0	42.6	27.0
Matric but less than intermediate	9.7	12.3	7.0	10.0	12.4	7.5
Intermediate but less than degree	3.9	4.7	3.1	4.1	4.9	3.2
Degree and above	3.8	4.9	2.6	3.8	4.8	2.7
Literate	51.6	63.7	39.2	53.1	65.0	40.6
Illiterate	48.4	36.3	60.8	46.9	35.0	59.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Labor Force Survey 2005-2006

4. Data and Methodological Issues

According to economic theory, an individual's occupational attainment is a function of employers' willingness to hire that person (labour demand) and the individual's desire to work in a particular occupation (labour supply). Labour demand is determined by the individual's human capital, and the labour supply is expressed as a utility function, which includes at least three components: income of occupations, taste for the work involved and family size (Brown et al. 1980). The problem of labor supply is multidimensional. They involve firstly the decision of individuals (or families) whether to seek work or not, and how long to work. Secondly, individuals must decide what sort of work to do, determining the supply of labor to specific occupation. Thirdly, they must decide for whom to work, determining the supply of labor to particular firm or organization. Notwithstanding these issues, there are also some other constraints, socio-economic and demographic, on the women labour force participation. Keeping in view these observations, we explain data and methodological issues.

4.1. Data Sources and Sampling Procedure

This paper is based on the primary source of data collected from the postgraduate females passed out from Bahauddin Zakariya University, Multan.

This university was established in 1975 and is located in the centre of Pakistan and in South of Punjab Province. Postgraduates in the following subjects are included for the sample survey: Chemistry, Economics, Education, English, History, Mathematics, Physics, Statistics, Urdu and Zoology from six faculties in the university. These faculties are Arts and Social Sciences; Pharmacy; Islamic Studies and Languages; Commerce, Law and Business Administration; Sciences and Agriculture; and Engineering. By using simple random sampling technique, we selected three faculties and out of them ten subjects (mentioned earlier) are selected and then sample is drawn using systematic random sampling technique. The preliminary information concerning names and addresses of the passed out candidates was collected from controller examinations office of the university. Based on their whereabouts, detailed information was collected by sending questionnaire by registered post mail. Due to some constraints such as the respondent's availability on the given address, time and economic restrictions, the total 194 filled questionnaires are received that make the sample size for empirical analysis. The data collection procedure was completed in 2006.

4.2. Determinants of Woman Labour Participation

There are number of factors that determine the females' labour force participation.

Education

Education in every sense is one of the fundamental factors of labour force participation and development. Education raises people's productivity and creativity and promotes entrepreneurship and technological advances. In addition, it plays a very crucial role in securing economic and social progress and improving income distribution. It increases the overall productivity and intellectual flexibility of the labor force. Women having higher education are very important part of work force and can play very significant role in economic development. However these females are facing some constraints to participate properly in the labour force. The education of mother, father and husband (in the case of married respondents) has positive as well as negative effects. Positive in the sense that high education makes them more liberal towards job and negative in the sense that when parents/husband have high education and think they can earn more income then why their daughter/wife participates in the labor force.

Family Income

Similarly, family income has also hypothetically both positive and negative effects on woman's labor force participation. If family income is significant, then it affects negatively the female labor force participation and positive in the sense that when family income is low, it leads to more participation.

Occupations

Occupation of father and husband (in the case of being married) also affects women participation. Occupation reflects the level of income as well as social status. Different social status and thinking have different impacts on the decisions of the females to participate in the labor force or not. If mother is also participating in labor force, it may have positive or negative effects on females' labor force participation. Positive in the sense if mother is satisfied with her job/business and

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negative if mother have bitter experience in job/business due to lake of facilities and social problems.

Number of children
Number of children is very important factor that constraints women participation. Although it may seem obsolete to someone but the culture in our society remains that women are more likely to take time off from participation in the labor force, especially when they begin to have children (Jacobsen 1998). Nevertheless, the presence of small or more children significantly reduces the probability of labor force participation for females. It increases the opportunity cost of females' labor force participation. In the presence of small or more children, the family structure also affects the female labor force participation. Indeed in the presence of home childcare in the form of extended family members or other adults negates the impacts.

Number of male adults at home
Number of male adults at home and their contribution to family's total income may affect female time allocation for family income. In developing countries like Pakistan male-dominated cultures have had a long, ingrained influence on all aspects of life. As correctly pointed out by Gunderson (1994):

"Discrimination in the developing countries tends to be more overt, with all parties (employers, males and even females) often adhering to traditional attitudes about what jobs are 'suitable and proper' for women, and what pay is 'appropriate' given perceptions about who is the 'breadwinner'"

Income from other sources
Income from other sources also affects the women participation in the labour. It reduces labor force participation when the income from other sources is significantly high.

Job facilities
Job facilities provided by government or other sectors and better transport facility in the case of more distance between home and job place is very important factor for women labour force participation. According to qualification, job scale and pay counts for higher women labour force participation. Credit facility also affects the women participation in case of business initiatives.

Social factors
Social factors have also contribution in the decision of females about participation in the labor force, e.g., the structure of the family either they are in a joint or nuclear family system, either they are purdah observing or not and the attitude of family towards females labour force participation.

4.3. Diagnostic Methodology
Since this paper is based on the primary source of data, Logit model, one of the binary choice or qualitative response models, with the outcome, being assigned a value of 1 if the event occurs and 0 otherwise is employed for empirical analysis. In the logit model, it is hypothesized that probability of the occurrence of the event is determined by the (cumulative) logistic distribution function.

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$$p_i = f(z_i) = \frac{1}{1 + e^{-z_i}} \qquad (1)$$

Where,

$$z_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + ... + \beta_k x_k = \beta_0 + \beta_i x_i$$

or alternatively,

$$p_i = \frac{e^{z_i}}{1 + e^{z_i}} \qquad (2)$$

Where, p_i is the probability that a higher educated woman participates in the labour force, e is the exponential value and X_i is the set of explanatory variables and β_i is the corresponding set of regression parameters. Since, the probability of supplying labor is not directly observable; a dichotomous (0-1) variable is constructed, taking the value 1, if higher educated woman is participating in labour force and 0 otherwise.

If p_i, the probability of participating labour force, as given by (2), then $(1-p_i)$, the probability of not participating, is :

$$1 - p_i = \frac{1}{1 + e^{z_i}} \qquad (3)$$

Therefore, we can write :

$$\frac{p_i}{1 - p_i} = \frac{1 + e^{z_i}}{1 + e^{-z_i}} = e^{z_i} \qquad (4)$$

Now equation (4) is simply the *odds ratios* in favour of participation and for estimation purpose, we take natural log that yields the name, Logit Model. Therefore, labor force participation of higher educated (postgraduate) women is considered, as a dependent variable with binary choice characteristics and its constraints or determinants are considered as a set of several explanatory variables in the logit model for empirical econometric analysis.

4.4. Selection of Variables

Since there are many determinants/ constraints of women labour force participation, we list in some significant variables for the estimation of logit model. The list and explanation of the variables is stated in table 4.

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Table 4. List of variables used in empirical analysis

Variables	Detail of Variables	Explanation of variables
Explained variable		
WLFP	Women labour force participation	If higher educated females participate = 1, otherwise = 0
Explanatory variables		
AGE	Age of the respondent	Age in years
MST	Marital status of the respondent	If married =1, otherwise = 0
NCHD	Number of children	In numbers
EDUF1	Father's education in terms of below 10 years of schooling	If father's education is below matric = 1, otherwise = 0
EDUF2	Father's education in terms of 10 years of schooling	If father's education is matric = 1, otherwise = 0
EDUF3	Father's education in terms of 12 years of schooling/college	If father's education is intermediate or equivalent = 1, otherwise = 0
EDUF4	Father's education in terms of graduation or more	If father's education is graduation or more = 1, otherwise = 0
MEDU	Mother's education	If mother is literate or has more education =1, otherwise = 0
MPRF	Mother's profession	If mother participates in the labor force =1, otherwise = 0
EDUH1	Husband's education up to matric (in the case of married females)	If husband's education is matric or below =1, otherwise = 0
EDUH2	Husband's education equal to intermediate	= If husband's education is intermediate =1, otherwise = 0
EDUH3	Husband's education equal to graduation	If husband's education is graduation or equivalent =1, otherwise = 0
EDUH4	Husband's education equal to masters and more	If husband's education is masters or more =1, otherwise = 0
HINC	Husband's income	Monthly in Rupees
HHSZ	Household size	All members of a household in numbers
NMAD	Number of male adults at home	In numbers
FAMS	Family Livelihood system	If live in a joint family system = 1, otherwise = 0
PMAL	Permission to move alone	If woman is allowed to move alone then = 1, otherwise = 0
GBIS	Gender bias	If the gender bias practice is made at home in terms of son preference then = 1, otherwise = 0
JOBM	Job before marriage	If woman gets job before marriage then = 1, otherwise = 0
PACC	Participation affects childcare	If participation affects childcare then = 1, otherwise = 0
PCIN	Per capita income of a household	Per capita income per month in rupees

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5. Empirical results and discussion

Since this paper attempts to examine the constraints that affect women labor force participation, a logit model is employed based on the primary source of data but first we present the preliminary estimates of the women participation. Table 5 shows the decomposition of educated women labour force participation computed into two groups consisting five years each with percentages for both periods. The results show that women education has increased with the passage of time in ten years, almost more than the double. The working females are found 121 (62.40 percent) out of 194 while women who are not participating in the labour market are 73 (37.60 percent). The decomposed results show that women labour force participation has increased in the second period as compared to the first five years period.   Consequently, it shows the increasing trend of educated women labor force participation in Pakistan but still about 38 percent educated females are not participating.

Table 5. Results of Preliminary Data Analysis

Academic Sessions	Total Respondents	Educated Women Who Participate	Educated Women Who do not Participate
1991-95	58 (29.90)	27 (46.60)	31 (53.40)
1996-00	136 (70.10)	94 (69.10)	42(30.90)
Total	194 (100.00)	121 (62.40)	73 (37.60)

Source: Computed by authors based on the primary data
Note: Figures given in the parentheses are the corresponding percentages

In order to find out the factors that affect the educated women labour force participation (WLFP), we present the results of logit model estimates in depth based on different variable's categories from the primary data. First, we consider the total sample for all-important variables. Secondly, data is divided according to family system (joint and nuclear) and the effects of variables under these family systems are analyzed separately. As the trend is changing with the passage of time, the trend of educated WLFP may change. Then data are sorted out into categories of married and unmarried women and are analyzed under both statuses.

The results of using logit model based on primary data consisting total sample of 194 respondents are reported in table 6. All variables have the correct signs according hypothetical relations. The variable Age has negative effect on the labor force participation of higher educated women. It shows that if higher educated women are willing and have more chance to participate in labor force they will do it just after completion of their study and as time passed the ratio of their participation will fall. Age of woman restricts her participation in the labour market. Marital status (MST) has positive effect on educated women labor force participation. The proportion of married females in labor force is more as compared to unmarried females. Number of children (NCHD) has a negative and significant effect on the women participation. As the number of children increases the participation rate decreases. Mothers' labor force participation (MPRF) has a positive effect on the woman labour participation. The reason may be that the respondents whose mothers are participating in labor force have more chance to

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participate in labor force. The families where already females (mothers) are working are more in favor of females' labor force participation.

Table 6. Estimates of logistic regression analysis based on total sample

Variables	Coefficients	Z test	Odds Ratio
Constant	0.63	2.85	-
Age	-0.06	-0.80	0.95
MST	0.30	0.39	1.35
NCHD	-0.64[*]	-2.82	0.53
MPRF	0.80[**]	1.73	2.23
EDUF1	-2.14[*]	-2.02	0.12
EDUF2	-0.39	-0.57	0.67
EDUF3	0.32	0.61	1.37
EDUF4	0.57	1.09	1.78
HINC	-0.0005[*]	-2.15	1.00
HHSZ	0.22[*]	3.33	1.24
NMAD	-0.75[*]	-2.94	0.47
PMAL	0.59[***]	1.47	1.81
JOBM	2.17[*]	4.32	8.80

Number of observations = 194, Log-Likelihood = -89.23, Joint significance = 78.47[*]
*Note: *, **, *** significant at 1 percent, 5 percent and 10 percent respectively*

Level of father's education has a very significant effect on participation. According to empirical results, the low level of father's education has a negative effect on women participation and as the level of father's education is increasing, the rate of women participation is increasing. When father's education is below matric (EDUF1), the effect on WLFP is negative and when it is matric (EDUF2) then it has also negative effect but it is low as compared to previous. When father's education is more than the matric, it has positive effect on WLFP. As the level of father's education is increasing the level of WLFP is also increasing. The level of husband's income (HINC) has a negative effect on WLFP. The reason of WLFP may be the financial needs, as when husband's income is low, more females will participating in the labor force and as the level of husband's income is increasing; the rate of WLFP will also decrease.

Household size (HHSZ) has a positive and significant effect on WLFP. The reason may be that if the family size is large and the number of females is more at home, the household responsibilities will be divided and educated women have more time to participate in labor force. Number of male adults at home (NMAD) has a negative and significant effect on WLFP. It may be due to the male adults at home and due to more working and earning by them, the size of family income increases and they thinking unnecessary to participate the woman in labour.

Permission to move alone (PMAL) is a very important factor for WLFP in the South Asian countries like Pakistan. It has positive and significant effect on WLFP. The females who are permitted to move alone are more participating in the labor force, women who are not permitted to move alone are more dependent on their male counterparts, and although they are highly qualified but their

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participation rate is very low. Job before marriage (JOBM) has a positive and significant effect on WLFP. The females who participate in labor force before marriage, after marriage although their responsibilities increased but mostly females continue it due to matching their financial needs and enjoy the benefits of jobs or may be they are habitual of it.

Family system has a significant impact on WLFP, especially in developing countries like Pakistan. In a joint family system, responsibilities have been divided to some extent but it has negative effect on independence. There are also some other variables, which have significant effect on WLFP in joint family system. Now we present the results based on both joint family system and nuclear family system and are reported in table 7 and 8 respectively. The results show that all variables have correct signs accordingly. Similar to the results of total sample data, in joint family system age also has negative effect on WLFP. It shows that with the passage of time, the trend of WLFP has increased and higher educated females are joining labor force as compared to past. The reason of this changing attitude may be the increasing level of education, awareness, needs and the availability of jobs. The number of children (NCHD) has negative and significant effect on WLFP rate because due to more children, the females' household responsibilities increase and as the number of children increases, mother has less time to participate in labor force. Household size (HHSZ) has a positive effect and significant at 1 percent level on WLFP because due to more persons (females) at home the household responsibilities have divided and females have more chance to participate in labor force.

Table 7. Estimates of Logistic regression analysis based on joint family system

Variables	Coefficients	Z test	Odds Ratio
Constant	0.68	2.43	-
Age	-0.10	-0.81	0.90
NCHD	-0.51**	-1.81	0.60
HHSZ	0.17*	2.20	1.19
HINC	-2.76	-0.77	1.00
JOBM	2.77*	3.74	5.98
NMAD	-0.39	-1.05	0.67
MPRF	0.35***	1.49	1.42
EDUF1	-1.74	-1.14	0.17
EDUF2	0.90	0.75	2.47
EDUF3	1.21***	1.64	3.37
EDUF4	1.92***	1.68	3.64
PMAL	0.67	1.20	1.95

*Number of observations = 88, Log-Likelihood = -39.00, Joint significance = 36.13**
*Note: *, **, *** significant at 1 percent, 5 percent and 10 percent respectively*

The level of husband's income (HINC) has a negative effect on WLFP but not significant. The results state that as the level of husband's income increases the level of wife's labour force participation decreases. It also shows that most of the female's participation in the labor force is due to their financial needs and when there is no financial problem due to their husbands' more earning their participation rate decrease. Job before marriage (JOBM) also has positive and significant effect

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on WLFP. It clears that the females who are working before marriage, continue it after marriage too. Number of male adults at home (NMAD) has negative effect on WLFP. Mother's labor force participation (MPRF) has a positive and significant effect on the respondent's labor force participation. The reason may be that due to mother's working daughter has more chance and guidance to participate in labor force and it may also caused the positive family view about WLFP. According to results, as the level of father's education increases, the rate of WLFP is also increases. Increasing level of father's education has a positive effect on WLFP. Here some results on father's education are contradicting in relation to the results of a total sample. In total sample data, EDUF1 and EDUF2 both have negative effect and EDUF3 and EDUF4 have positive effect on WLFP but this analysis shows that just EDUF1 has negative effect and EDUF2, EDUF3 and EDUF4 all have positive effect on WLFP. So it clears that in joint family system with the effect of other variables, father's attitude towards WLFP is also positive when his education is matric. Permission to move alone (PMAL) shows the less dependency of females on males and it has positive effect but not significant on the rate of WLFP.

All variables have the correct signs. Similar to the analysis of joint family system age has also negative effect on WLFP for highly qualified females. The reason may be the changing trend about WLFP and the more availability of females' jobs. The number of children (NCHD) has negative and significant effect on WLFP. As the data is based on the nuclear system, so with more children women have less time to participate in the labor force due to increasing responsibilities. The household size (HHSZ) has positive significant effect on WLFP. This may be due to increasing financial needs and due to more persons at home, cause to decreasing household responsibilities. The level of husband's income (HINC) has negative effect on WLFP but job before marriage (JOBM) has positive and significant effect on WLFP. Numbers of male adults at home have negative effect on WLFP. If mother is participating in labor force, it has positive effect on daughter's LFP. Low level of father's education has negative effect on WLFP but as the level of father's education increases, it has positive effect on WLFP. If females are permitted to go out alone, it shows their independency to some extent has positive effect on WLFP.

We present higher educated WLFP rate and variables that affect their participation by dividing the data into married and unmarried respondents and are given in table 9 and 10 respectively. The main purpose of this analysis is to analyze the effects of married and unmarried life of women on WLFP. Out of total 194 respondents, 130 are married and out of them 75 are in labor force. All variables have the correct signs accordingly. The result shows that AGE has inverse and significant impact on the WLFP. The number of children (NCHD) has a negative effect on the rate and level of WLFP. Although 57.7 percent married female are participating in labor force but their participation level is low and as the number of children increases, the level and rate of WLFP also decreases. Household size (HHSZ) has positive and significant effect on WLFP. This may be due to dividing responsibilities, as there are more female members at home, so females have more time to participate in labor force. HINC has the negative and significant effect on WLFP. It shows that with the high level of husband's earning, the rate of wife's labor force participation decreases. If females are permitted to move, alone they have more chance to seek suitable job and employment. PMAL

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has positive and significant effect on WLFP while gender bias (GBIS) has negative effect on WLFP. Distinction on sex base in every field is very common especially in developing countries like Pakistan. According to many other studies, the rate of GBIS is high and according to our results GBIS has, a negative effect on WLFP but the effect is not too much high. The reason may be that being highly educated these females are able to take their own decision to some but still they are deprived. They face hurdles in different forms and have no proper chance to utilize their knowledge and skill properly.

Table 8. Estimates of Logistic regression analysis based on nuclear family system

Variables	Coefficients	Z test	Odds Ratio
Constant	1.32	4.38	-
Age	-0.02	-0.15	0.92
NCHD	-1.18*	-3.15	0.31
HHSZ	0.51*	2.35	1.68
HINC	-0.005**	-1.63	0.99
JOBM	1.74*	2.25	5.71
NMAD	-1.93*	-3.10	0.15
MPRF	1.18**	1.59	3.27
EDUF1	-3.43***	-1.34	0.03
EDUF2	-2.17**	-1.81	0.11
EDUF3	0.035	0.05	1.04
EDUF4	0.42	0.51	1.52
PMAL	0.91***	1.46	2.49

*Number of observations = 106, Log-Likelihood = -42.53, Joint significance = 57.28**
*Note: *, **, *** significant at 1 percent, 5 percent and 10 percent respectively*

Table 9. Estimates of Logistic regression analysis based on married females

Variables	Coefficients	Z test	Odds Ratio
Constant	0.38	2.19	-
Age	-0.14***	-1.61	0.87
NCHD	-0.41**	-1.72	0.66
HHSZ	0.19*	2.24	1.21
HINC	-0.006*	-2.59	0.98
PMAL	0.72***	1.67	2.05
GBIS	-0.17	-0.34	0.84
NMAD	-0.69*	-2.08	0.50
PACC	-2.23*	-3.04	0.11
EDUH1	-1.39	-0.66	0.25
EDUH2	0.02	0.02	1.20
EDUH3	0.83	0.48	2.30
EDUH4	0.81	0.47	2.25

*Number of observations = 130, Log-Likelihood = -58.17, Joint significance = 60.78**
*Note: *, **, *** significant at 1 percent, 5 percent and 10 percent respectively*

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NMAD has significant and negative effect on higher educated married females' LFP. The mostly married females avoid participating in labor force because they think that their labor force participation will have negative effects on their children's care and health. So according to this analysis mostly married females are in view that the effect of labor force participation on childcare (PACC) is negative. The level of husband education has also very significant effect on wife's LFP. When the level of husband's education is matric (EDUH1), it has negative effect on the wife's labor force participation. Nevertheless, as the level of husband's education increases, the rate of WLFP also increases. Therefore, when husband education is more than matric, the effect on WLFP is positive.

We present the results based on the data of unmarried females. All variables have the correct signs accordingly. The results in table 10 show that AGE has positive effect on higher educated unmarried females. In this case, the result is different to earlier results. The reason may be after the completion of their study they have chance to participate in labor force or not, mostly females get married, but the females who are unmarried mostly remain in search of the chance of better utilization of their knowledge and skill and with the passage of time they keep their self engage in some job. Therefore, it has positive impact on the participation. Being unmarried mostly they have less household responsibilities so they have more time to participate in the labor force. HHSZ has positive effect as due to more females at home, the females' responsibilities may divide and they have more time to work. NMAD has negative effect on WLFP; the reason may be that due to more male adults, the level of family income increases and their male counterparts think why do their females participate in the labor force.

Table 10. Estimates of Logistic regression analysis based on unmarried females

Variables	Coefficients	Z test	Odds Ratio
Constant	0.53	3.71	-
AGE	0.17	1.04	1.19
HHSZ	0.23***	1.78	1.26
NMAD	-0.87***	-1.74	0.42
MPRF	1.59***	1.75	4.89
EDUF1	-1.61	-0.91	0.20
EDUF2	-1.49	-1.20	0.23
EDUF3	2.57**	1.75	3.09
EDUF4	0.06	0.06	1.06
PMAL	0.25	0.34	1.29
PCIN	-0.003**	-1.96	0.99
FAMS	-2.18**	-1.81	0.11

Number of observations = 64, Log-Likelihood = -27.25, Joint significance = 21.54*
*Note: *, **, *** significant at 1 percent, 5 percent and 10 percent respectively*

MPRF has positive effect on higher educated FLFP. The reason may be that if mother is participating in labor force, the daughter will not have many constraints in LFP and may be she has cooperative attitude by her family members to participate in the labor force. When father education is below matric or matric it has negative effect on WLFP but as the level of father education increases, it has

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positive effect on WLFP. PMAL has a positive effect on WLFP as with some independence they have more chance to participate in labor force. If the level of PCIN is high, the fewer females participate in labor force because they have no need of finance. Joint family system (FAMS) has also negative effect on unmarried WLFP.

6. Conclusion and Policy Implications
The participation of higher educated women in the labor force can play an incredibly vital role for more inclusion and sustaining growth in the developing countries like Pakistan but due to some socio-economic and demographic constraints, their participation rates are significantly even low as compared to some developing countries. This paper attempts to address this issue and fills the gap in literature using logit model analysis based on primary data. The main conclusions that emerged from the empirical analysis are as follows:

i. The trend of higher educated females' labor force participation is improving with the passage of time but still it is very low as a significant part of the labour force in the country. Both married and unmarried females are highly dependent on their male counterparts and society's attitude towards their decision about labor force participation. In Pakistan, these females mostly belong to middle status families and they only participate due to their financial constraints and needs. Unmarried females are engaged in jobs when they get cooperative attitude from their family but married females are participating because of both financial problems and family permission issues.

ii. The empirical results state that number of male adults at home, husband's income, number of children, education of husband, participation affects childcare, per capita income of a family, age, family system, gender bias, and education of father and husband up to intermediate are inversely correlated with women's labour force participation. While the variables, higher educated father and husband, household size, permission to move alone, job before marriage and mother's participation and profession have positive relationship with women's participation. The decision of females to join labour force not only depends upon her personal characteristics but also on her husband's and father's education; their attitude towards female job and also on family characteristics which include the profession of respondent's father, mother or husband profession. The mother's qualification and especially mother's LFP of the respondent count more in this matter. When mother is participating in the labour force, it has positive effect on respondent's LFP. The females belonging to educated families, participating more in the labour force because they do not face more constraints in joining labour market as compared to females belonging to low educated or uneducated families.

iii. According to the sample data, women's employment has risen but their concentration is on the few occupations, that are generally lower paid and of lower status. The cultural climate discourages female advancement in trade and industries.

iv. For some females, formal employment outside the home is not a feasible for reasons, which include lack of access to transportation, domestic responsibilities, inadequate job training, and other barriers to entering the workforce. Some higher educated females do not participate in the labor force because of these constraints.

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v. Since education is one of the most important factors accounting for increased female labor force participation, other factors that have increased participation of females in the work force include a decline in their spouses' earnings, a drop in fertility rates, the cooperative attitude by family members and largely the education of a whole family.

vi. In joint family system comparatively more proportion of higher educated females is participating in labor force but the difference is not much high. In a joint family system, more females are engaged in service and nuclear family system more females are doing business as compared to joint family system.

vii. Women's dependency level is high as they need permission to move out and mostly they are not allowed to move alone. The empowerment of females in terms of decision-making is mostly linked with WLFP, as working females are more confident. Lack of adequate childcare provides one of the principal barriers to female employment. Like other females, highly educated females also have to face the problem of distinction on sex base at home.

viii. More proportion of married working females is in view that there is no negative effect of job on childcare but non-working females are mostly in view that job has negative effect on childcare.

ix. Higher educated working females are doing job/business for the better utilization of time, capabilities, education or due to financial problem, to improve their status, self confidence, to serve the nation and country. Females are more likely to improve their status and participate in labor force if their males are employed in the public/government sector and if there are other adult females at their homes who would presumably free them from household responsibilities.

Policy Implications

Economic development policies need to be implemented without gender bias that consequently will assist in promoting higher educated females labor force participation and allow them to achieve their full economic potential. There are no guaranteed employment schemes for postgraduates, and no structural adjustment policies by the government that make sure the participation of higher educated women in labour force. If the doors are opened for females to participate in the workplace, faster and sustaining economic growth could be achieved. The future research can be conducted on the same topic by considering time series data on the countries in South Asia.

Therefore, some recommendations based on empirical analysis have been proposed to minimize the constraints to higher educated women's employment in countries like Pakistan.

i. Governments should take measures to reduce the unpaid burden through reducing female household chores and childcare obligations. Because the results indicate that one of the major constraints to working female is not to provide the facility of childcare centre by which they can spare some time for job. Government should recognize and act upon the obligation to provide childcare facilities to working females. Moreover, authorities should make some laws and regulations regarding the transport facilitates to working females between the home and work place.

ii. Government should encourage investment in the labour intensive small scale manufacturing opportunities to promote absorption of the surplus educated female labour supply by providing incentives for public and private investment. The

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facility of microfinance to unemployed educated women will also have some positive symptoms for inclusive growth and gender poverty alleviation.

   iii. There is an ardent need to bring some significant changes in the social values of the family and society's attitudes within Islamic framework to enhance the pace of more women's participation in labour force through quality education to all and the role of media.

   iv. Policymakers should routinely use gender analysis when examining the potential impacts of economic development programs on the state's economy.

   v. In order to enhance females' informal work in the urban sector, government needs to modernize and regulate this sector. Credit facilities and business guidance need to be extended to working female for the efficient performance and extension of their trade.

   vi. It is observed from the survey data that mostly females are doing their jobs not according to their subjects. They can utilize their abilities and education properly only if they get jobs according to their subjects, cooperative and encouraging environment at home and in working institutions, near to home or with proper transportation facility, and with comfortable timing. In short, media and government policies should be aiming at improving the social thinking and market environment by improving employment condition of females, stabilizing their employment and ensuring the training of females.

   vii. Higher Education Commission should introduce a department, who should maintain the record of all postgraduates from all universities in Pakistan for providing the job/business facilities for all without gender bias. The postgraduate females also should be convinced to join the labor force and utilize their knowledge and abilities for more inclusion and economic development.

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