

Push or Pull Factors of Female Labour Force Participation in Bangladesh

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Abstract

Despite advancement in female educational attainment and the expansion of market economy, female labour force participation rates are still low in comparison to the rates of their male counterparts in Bangladesh. Recent past, urban female participation also slowed down. This paper, seeks the deterministic factors of female participation and also investigate reasons behind the urban slowed down. Data for the study has extracted from the 2010 Labour Force Survey of Statistics Bangladesh and a field survey in 2013 within urban area of Dhaka. Logistic regression modeling has used to estimate the influence of education on labour force participation, and the results show that there is an association between the level of education status and FLFP. Wage earners or low paid household heads strongly motivates their spouses to participate in the labour market, compared salaried or high earners household heads. Number of infants creates obstacles to participate.

Keywords: Logistic regression, female labour force participation, Bangladesh

1. Introduction

In developing economy, women play an important role by the supply of labour for economic activities, by contributing to household income and above all by empowering women (Rahman, R.I. 2013). As the country's development process shifting up the women participation rate shows declining trends from increasing trends experienced during early development-trend in women's employment hypothesizes a U-shaped relationship between economic growth and women's employment (Bosereup, 1970, 1990; Psacharopoulos and Tzannatos, 1989, 1991; Schultz, 1990). The growth of the modern sectors like education, finance creates more opportunities for female which increases the labour force participation, However households that has more wealth than before increases their reservation wage to join in the labour market.

The national labour force statistics showed that male and female labour force participation has increasing trends (Table 1) and also stated that female LFPR went through an incessant rise during 1991 to 2010. During the latest sub-period, that is 2006 to 2010, female LFPR increased from 26.1 to 36.0 percent, which was faster than compared to other neighboring countries (Rahman, R.I. 2013). Although the trend showing the improvement of the labour market situation especially for women, but still around two-third female are outside from the economic activity. The country will not achieve faster economic development without major proportion of female in the labour force.

From disaggregated picture of rural and urban LFPR can help realize associations between LFPR and growth of urbanization. Table 2 presents the proportion of rural and urban LFPR. Female LFPR in both rural and urban areas have increased during 1992 to 2010.

Female Labour Force participation raised both in urban and rural area over 20 years. LFPR in urban areas were 20.5 and 34.5 per cent in 1996 and 2010 respectively. In these years, female LFPR in rural areas has risen by 19 percent from 17.4 percent. Urban and rural FLFPR are, thus, quite close and both have risen over the last 20 years. The recent years rural LFPR exceeds up compared to urban, while the earlier years the pattern was the reverse. There are two noticeable points: firstly, rural LFPR increasing speeds were faster than urban, and secondly, rural LFPR exceeds urban area. The question is why in rural areas LFPR increases rapidly and also why urban LFPR slowed down.

Given the background and context mentioned above, it would be useful to examine the factors that influence female labour force participation and employment. This could help further appropriate policy initiatives to speed up the female LFPR. The purpose of the present study is to enhance the understanding why urban LFPR becomes slowed down? As the urbanization growing faster along with economic development, it can provide insight materials for policy initiatives to speed up urban female employment.

The outline of the paper is structured as follows: After introducing background and motivation for the study in first section, section two reviews the major existing studies in Bangladesh and other developing countries. Section three presents model specification, data source and description of variables. Estimated result has been explained in section four. Finally Section five provides an analysis of the policy environment for women's employment and makes some suggestions for improvement in that regard. It also provides a summary of findings and concluding observations.

2. Literature review: determinants of female labour force participation in Bangladesh

Factors influencing female labour force participation have been usually conceptualized as supply side determinants. In the context of Bangladesh where the underemployment is high and social factors plays vital role, so both push and pull factors are expected to link with female employment. Kabeer (2012) highlights the role of such social factors in the female labour market and states that women's participation in the labour market is often not her own decision. As a result of strong patriarchy in Bangladesh society, male members of the family usually dictate or guide such a decision. Family's male members, society's attitude and established norms important deterministic factor for such decision.

Bridges et al. (2011) examines the factors influencing female LFPR, and showed the positive association between severity of the poverty and the probability of female employments. They also found that female come from extreme poor households have a significantly higher probability of participation compared to non-poor; while found insignificant difference between moderate poor and non-poor group.

Amin (2005) has argued that due to home-based economic activities has pushed the female labour force participation in Bangladesh. He also found that female-headed households, smaller family size, lower educational attainment, living in urban areas, lower levels of household wealth and microcredit have a positive impact on participation. Moreover, the data set does not have information on self/family employment, which is a larger component of female employment and the study cannot provide insights into its determinants.

Rahman, R.I. (2006) examine the deterministic factor of female employment, and found that women as head, female with higher education, residence in urban area have a positive impact on participation. On the other hand, land ownership; low level of education, marital status, having infants, and having educated household head have a negative impact. Rahman, R.I. (2006) found that the rapid expansion of micro finance in rural areas has supported women's employment in poultry and livestock; while urban employment are dependent on ready-made garments only. In the urban area, working hours, safety and health in the work place, freedom of association and collective bargaining remain also act as a constraint to increase participation. The author suggested increase the availability and accessibility of education and skill training, productive assets like land and credit beyond microcredit, and services of various government institutions.

The level of education increases the opportunity cost of not participating, and this implies higher education postulates higher probability of participation in the labour market (Khandker, 1987). He also found husband's education has a negative effect and increase in female wage reduces the probability of women's leisure. Thus, the author suggested policy interventions to raise women's wages would have a large positive effect on women's LFP. Khandker (1988) reports results for women's home production labour input. Women's education, land holding, and husband's assets have negative effects. Predicted female wage has a positive effect, which is difficult to explain.

3. Methodology of the Study

3.1 Model Specification

To examine the determinants of female labour force participation, we will deal with the dependent variable in this study is a dichotomous variable (0, 1). Given the nature of the dependent variable, Y, which takes value Y=1 if the respondent (female) is in the workforce; and takes value Y=0 if the female is not in the workforce, the two models, Probit and Logit models, can be used. Both of these models provide a prediction for the probability that a female with a given set of characteristics is in employment/workforce. However, since logistic model is easier to understand and uses a standard form of analysis, logistic regression model is used in this study.

In the logistic model with more than one independent variable, the model can be written as (Mon, Myat, 2000):

$$\text{Prob [Female in workforce]} = \frac{1}{1 + e^{-Z}}$$

where, Z is a linear function of the explanatory variables. If X_1, X_2, \dots, X_k represent various characteristics of the household and female respondent, then "Z" equation would be as follows: $Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$

Each β_i can be shown to be $\frac{\partial \log(\text{odds ratio})}{\partial x_i} = -\beta_i$

where odds ratio is define as: $\frac{P[\text{female in workforce}]}{P[\text{female not in workforce}]} = e^{-Z}$

Therefore, β_i provides a measure of change in the logarithm of the odds ratio of the chance of a female working to not working.

3.2 Data

To find the deterministic factors of female participation in the labour market, and examine the reasons behind the

recent slowed down of urban female participations; we used two types of data sets. For a better understanding of the determinants of female labour force participation, logistic regressions have been estimated on the basis of data from LFS 2010. All individuals aged 15 and above and not currently studying in any educational institutions have been included in the sample. LFS survey consists a total of 58,297 females and 57,525 males in the sample. Female respondents only considered, as sample size 58,297. In addition, 357 individuals' data also collected from a field survey interviews in Dhaka City in 2013, to understand the current employment situation and future prospects.

3.3 Variable specification and expected sign

A number of potential variables for inclusion in the logistic regression as suggested theoretical models that explain female participation in the labour force. Table 3 describes the notation and dummies, which used in the regression:

Age is a crucial deterministic factor for women's participation in the labour force is usually viewed as a positive feature. Female participation varies significantly as age distribution (Durand, John D., 1975). The influence of age may be non-linear, that is, may decline after some threshold has been reached that's why quadratic term also included.

The marital status is one of the major influential deterministic factors on female participation in the labour force as it gives additional responsibility i.e childcare, house works, taking care of elderly people and etc (Table 4) compared to unmarried female (Mon, Myat, 2000). Being married has a negative effect and this result may have been influenced by the fact that paid employment dominated by the RMG sector requires long hours of work. In the contrary, they also found there is a growing acceptance of outside employment among young unmarried workers (Bridges et al., 2011).

The female LFP rate reaches a peak before the beginning of childbirth and a few years after the period of childbearing and declines during the child-rearing period (Mon, Myat, 2000). Having young kid has a positive effect on self-employment and a negative effect on wage employment (Bridges et al., 2011).

Education can have an important positive impact on female LFPR as it increases the opportunity and productivity. Education has positive effects on employment but on the lower and upper level. May be urban areas generates fewer jobs for secondary and college graduates (Table 5). Some literatures suggested that some cases influence can be in either direction or non-linear, i.e. do not necessarily improve women's opportunities for meaningful economic participation (Standing 1978; Smock 1981; Jones 1984). Higher level of education will expand the opportunity of good jobs, while low education force in a trap to become unemployment.

The survey results suggested female are less came to job market if she belongs to households with secured jobs and stable income earners like salaried and business. Female are more supposed to enter job market if she is from households where household earnings source are not secured and stable like garments/factory workers, petty professions (Table 6)

Urban areas has more opportunity for employment, so urban dummy expected positive effects. Having more non-labour income increase intercept so it discourages employment.

4. Estimated Results

4.1 Regression Results: Evidence from Labour Force Survey, 2010

Most of the results of the logit regression analysis presented in Table 7 are in conformity with a priori expectations. Indicators of family responsibility have significant negative coefficients-married, number of children aged 5 years or less, number of male dependents above age five etc. Among human capital variables, age has a non-linear effect, first positive and then negative.

Education has a positive impact. Four levels of education, with 'no education' as base case, have gradually rising positive coefficients. Education raises productivity and, thereby, raises wage/salary and through its substitution effect, raises female LFPR. Among the family characteristics, number of male earners has a significant negative coefficient.

Family asset has positive influence. Compared to the base case of households 'with no land or non-land asset' women in households with own land assets have a significantly higher probability of labour force participation. However, ownership of some land raises the probability of female LFP, but in the highest land ownership group, it is insignificant, which may be due to use of more hired labour and prestige considerations.

The interesting observation from regression Table 8 is that number of earner variable has positive for rural but negative for urban participation. Another things, asset has no significant impact on rural salaried but has for urban female participation.

4.2 Regression Results: Evidence from Urban Survey

Most of the results of urban survey are similar with LFS data which has shown in Table 9. Marital status and having kids has significantly negative effects to participate in the labour force for women. The explanation

would be in the urban areas, we have very limited and expensive childcare/baby care centers, so lots of female left jobs after becoming mother.

Educational level has significantly positive effects on labour force participation, which was same as expected. Sex of the household heads also has positive effects on female employment, in absence of male household heads, and number of male earners has weak positive effects. The level of education of household heads has strong negative effects on female employment or job market participation, which is unexpected. The plausible reasons might be, they are employed in secured and high salaried jobs, which influenced the female members not to participate in the job markets.

Results in Table 9 also suggested that garments workers allow their spouses significantly to enter job markets compared to wage earners, but salaried and businessman husband or father are not strongly motivate theirs spouse/daughter to enter job.

In the urban area, the working-women facing problem after having baby, due to very limited childcare centers and lack of trusted home servant; as a consequences some of them quit from jobs. The job market in Bangladesh has producing few part-time jobs for students, married women so even at some point of time female when they wanted to come back but could not find suitable jobs.

In addition to regression results, the transportation in the urban area is not female friendly. Dhaka is the one of the worst traffic congestion city and the public transportation is very limited compared to demand. Another thing, very few offices has childcare facilities which also one of the major obstacles for working mothers.

5. Summaries and Conclusion

The findings common to a number of earlier studies on determinants of female LFPR in Bangladesh have shown that: having a small child, more assets and husband's education reduces the probability of female employment. Education and family asset are expected to raise women's participation in both rural and urban areas. These factors increased the reservation wage so lots of female in the urban areas stay at home rather participate.

The urban survey results suggested that garments workers or low earning husbands or household heads allow their spouses significantly to enter job markets compared to wage earners; since its pretty difficult for them to survive properly by household head income. In the contrary, the reverse scenario seen to the household where household head are salaried and businessman, then they is not strongly motivate theirs spouse/daughter to enter job.

The policy makers showed emphasis on the female education till undergraduate level, and also create more public or public-private childcare or day care centers, which promote more mothers to keep in the job markets. Policy makers can increase/established government supported or subsidized private childcare or baby care for employed mothers. Unavailability of enough public transport for female also discourage middle class families to allow their spouse to enter into job markets. One plausible solution would be providing enough female buses or public transport in the urban areas. To reduce the traffic congestions more female friendly public transportation can provide more safety for working women. To speed up female job market participation in urban areas we have to create jobs for secondary and college graduates; i.e. part-time jobs.

On the other hand, government can provides more SME loans female entrepreneur, so that they can run their own business, which will more job opportunity for more females. The vocational education can help to create more entrepreneurs.

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Table 1.1: LFPR in Bangladesh (15+ years)

LFS year	Female	Male	Total
1991-92	14.0	86.2	51.2
1995-96	15.8	87.0	52.0
1999-00	23.9	84.0	54.9
2002-03	26.1	87.4	57.3
2005-06	29.2	86.8	58.5
2010	36.0	82.5	59.3

Source: Bangladesh Bureau of Statistics (BBS), Labour Force Survey, LFS (various years)

Table 1.2: FLFPR by area in Bangladesh

LFS year	Rural	Urban
1995-96	17.4	20.5
1999-00	23.1	26.5
2002-03	25.6	27.4
2005-06	29.8	27.4
2010	36.4	34.5

Source: BBS, LFS (various years)

Table 3: Notation and Description of variables in Logistic Regression model

	Variable(s)	Base for dummy variables
AGE	Age	
SQAGE	Square of age	
MAR_D	Married dummy	Not currently married
NOC5Y	No. of children <5 years in household	
NOME	No. of male earners in household	
NEARNR-N	No. of non-earning males in household	
ASSET_2	No land, other asset	Asset 1 (No land or non-land asset)
ASSET_3	Small land owned	
ASSET_4	Larger land	
URBAN_D	Urban dummy	Rural
EDUC_D2	Education dummy 2 (primary)	No education
EDUC_D3	Education dummy 3 (secondary)	
EDUC_D4	Education dummy 4 (above secondary)	
HEDUY	Household head education attainment years)	
HSTAT_D2	Household head status dummy (non-agriculture, wage employment)	HSTAT-D1 (agriculture-self-employed)
REL	Whether head of households	Not

Some observations: Urban Survey Data 2013

Table 4: Marital status of the sample respondents

Marital status	Not in Job	In Job
Un-married	0.45	18.2
Married	97.7	65.6
Widowed/divorced	1.80	16.0
Total	220	137

Table 5: Level of education of the respondents

Level of education	Not in Job	In Job
No education	5.45	6.6
Primary incomplete	11.8	16.8
Primary completed	20.9	13.8
Secondary	20.4	10.2
Higher secondary	20.9	8.03
Undergraduate	10.9	17.5
Graduate/Higher	9.5	27
Total	220	137

Table 6 : Respondents Level of education and occupation choice

Level of Education	Occupational Status							Total
	Salaried	Garments	Self-employed	Housewife	Wage employ	Business	Others	
No educa	4.76	19.05	0.00	57.14	0.00	0.00	19.05	100.00
Below prim	4.08	32.65	2.04	53.06	0.00	4.08	4.08	100.00
Primary	3.08	12.31	1.54	70.77	1.54	6.15	4.62	100.00
Secondary	10.17	5.08	1.69	76.27	1.69	1.69	3.39	100.00
College	8.93	3.57	3.57	82.14	0.00	0.00	1.79	100.00
Undergrad	28.26	0.00	4.35	52.17	0.00	4.35	10.87	100.00
Graduate	49.12	0.00	1.75	36.84	0.00	3.51	8.77	100.00
Total	57	33	8	220	2	11	22	357

Table 7: Results of logit regression: Determinants of probability of female labour force participation (FP) and salaried (SP)

Independent variables	log(FP/I-FP) Marginal Effect	log(SP/I-SP) Marginal Effect
Age	0.027917***	0.000448***
Square age	-0.000464***	-0.000012***
Marital_d	-0.110999***	-0.017466***
No of kids<5 years	-0.033719***	-0.003933***
No of male earner	0.015207***	-0.002023***
No of nonearner male	-0.073678***	-0.000950*
Asset_d2	0.012783***	-0.001865*
Asset_d3	0.049450***	0.003532***
Asset_d4	-0.042829	-0.008531***
Urban_d	0.020085***	0.014648***
HH head	-0.020158*	0.013875***
Education_d2	0.010206*	0.001599*
Education_d3	0.037621***	0.006842***
Education_d4	0.057568***	0.007052***
Husband edu	0.011978***	0.002052***
Husband wage earner	-0.270196***	0.017469***
Pseudo R2	0.1190	0.1995
Wald chi2(16)	4831.9	2744.8
Prob>chi2	0.0000	0.0000
Log pseudolikelihood	-33982.53	-5959.18
Observation	58297	58297

Table 8: Results of logit regression: Determinants of probability of female labour force participation (FP) and salaried (SP) employment by rural-urban

Independent variables	log(FP/I-FP)		log(SP/I-SP)	
	Rural	Urban	Rural	Urban
Age	0.02915***	0.02513***	0.00063***	0.00078
Square age	-0.00047***	-0.00045***	-0.00001***	-0.00003***
Marital_d	-0.09346***	-0.16727***	-0.01168***	-0.05329***
No of kids<5 years	-0.02882***	-0.05869***	-0.00143***	-0.02119***
No of male earner	0.01654***	0.00474	-0.00084	-0.01018***
No of nonearner male	-0.06149***	-0.11113***	-0.00003	-0.00628**
Asset_d2	0.02024***	-0.04900***	-0.00128	-0.01387**
Asset_d3	0.05048***	0.03592***	-0.00069	0.02439***
Asset_d4	0.06508	-0.06412***	-0.00044	-0.02858***
HH head	-0.03188***	0.00611***	0.00660	0.04889***
Education_d2	0.01356***	0.01691	0.00330***	0.00070
Education_d3	0.03515***	0.06944***	0.00582***	0.02054***
Education_d4	0.05237***	0.07688***	0.00444***	0.02874***
Husband edu	0.01353***	0.01069***	0.00205***	0.00444***
Husband wage earner	-0.27527***	-0.28067***	0.01011***	0.04707***
Pseudo R2	0.1191	0.1362	0.1615	0.1619
Wald chi2(16)	3461.1	1321.5	1292.14	761.81
Prob>chi2	0.0000	0.0000	0	0
Log pseudolikelihood	-26900.29	-5959.18	-3116.21	-2716.03
Observation	46053	12244	46053	12244

Table 9: Results of logit regression from urban survey data: Determinants of female labour force participation

Logistic regression	Number of obs	=	333
	Wald chi2(10)	=	43.19
	Prob > chi2	=	0.0000
Log pseudolikelihood = -176.55053	Pseudo R2	=	0.1845

lfp	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
age	-.0109867	.0176524	-0.62	0.534	-.0455849	.0236115
marital_d	-2.767991	1.105473	-2.50	0.012	-4.934679	-.6013028
kids_5yrs	-.7595198	.2918497	-2.60	0.009	-1.331535	-.1875048
educ_level	.6091554	.1483378	4.11	0.000	.3184186	.8998921
hhsex_d	.7389839	.4123335	1.79	0.073	-.0691749	1.547143
m_earner	.2318931	.2272891	1.02	0.308	-.2135853	.6773715
hh_educ	-.4740789	.1527748	-3.10	0.002	-.773512	-.1746458
hhoccp_d2	.50234	.662074	0.76	0.448	-.7953011	1.799981
hhoccp_d3	1.810041	.6711519	2.70	0.007	.4946076	3.125475
hhoccp_d4	.3110695	.601784	0.52	0.605	-.8684055	1.490545
_cons	1.355826	1.386896	0.98	0.328	-1.362441	4.074093