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A Macro-Level Study on Factors Affecting Women's Participation in the Labour Force in Bangladesh

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***Abstract**: This study inspects the features that mark women's contribution to the labour force in Bangladesh. It uses some macro-level factors like the population of females, female unemployment rate, GDP growth rate of the country, and fertility rate for examining their effects on the significance of women's participation rate in the labour force in Bangladesh. This study uses secondary data from the World Development Indicator from 1991 to 2017. For running the regression, the Ordinary Least Square method is used and the result indicates that the women's population has a positive and significant impact on women's participation rate in the labour force while the fertility rate has a negative significant impact on women's participation rate in the labour force. The remaining tested factors, the growth rate of GDP of the country and female unemployment rate have a positive but insignificant impact on women's participation rate in the labour force.*

Keywords: Female population, Female labour force, Fertility rate, Unemployment rate, GDP growth rate

Introduction

Women's share in this world's population and labour force are fifty and forty per cent respectively (BBS and ADB, 2012; Lagarde, 2013; WB, 2012). One country's socio-economic development is not possible without the effective participation of all, especially the women labour force (Lopez-Claros and Zahidim, 2005). Different studies suggest a positive relationship between women's participation rate in the labour force and economic development in different countries (Al-Botmeh, 2013; Klasen, 1999; Pissarides, 2006), including Bangladesh.

From the mid-1990s, the economic growth rate shows some positive trends in Bangladesh. In the second half of the 1990s, the labour force grew sharply. Then again, during 2000-03, both GDP growth rate and female labour force growth rate fall. During 2003-04, the economic growth rate passed over six per cent. After 2006, a positive relationship between the GDP growth rate and women's participation in labour force growth was evident. In general, a positive relationship between economic growth and the growth in women's participation in the labour force in Bangladesh was established (Rahman and Islam, 2013).

In the mid-1990s the agriculture sector growth rate rose and women participation in this sector also rose, both of which positively affected women's participation in the labour

force in Bangladesh. Furthermore, a growth of microcredit helps to rise in women's participation in the labour force as well as an increase in their share in agriculture.

In developing countries, export-oriented industrialization stimulates the growth of labour-intensive industries, which normally generate employment appropriate for women. From the mid-1980s, the labour-intensive readymade garments (RMG) industry developed quickly. Still, now the garment industry is one of the main employers in the manufacturing sector for women in Bangladesh.

The Labor Force Survey (LFS) 2016-2017 shows that the total working-age population (aged 15 or older) in Bangladesh is around 109.1 million. Among the total working-age population, 49.5 million were male and 51.6 million were female. The total labour force participation rate in 2016-17 has estimated at 58.2 per cent among which 80.5 per cent was male and 36.3 per cent was female. Although in total, the female working-age population is higher than the male working-age population; women's participation in the labour force rate is much lower than man's. Hence, a wide gap between men's and women's participation rate in the labour force suggests 'insufficient' participation of women which indicates an underestimation of the economic potential of human resources in Bangladesh, which could fully draw to accelerate its economic growth.

Women need to participate in the labour force not only for social and economic development but also for their advancement and empowerment. There are different types of factors that affect women labour force participation. Such micro-level factors include the readiness of jobs, the total number of children, husband's education etc. On the other hand, women's participation rate in the labour force is determined by the female population, fertility rate etc. at the macro-level (Zaheer and Qaiser, 2016).

It can be identified from a body of related literature that women's participation rate in the labour force is significantly affected by several economic factors. Based on the existing literature, this study, therefore, wants to investigate the impacts of various macroeconomic variables on women's participation rate in the labour force in Bangladesh, which has not been done before.

The main body of this paper has six parts. The next section describes the objectives of the study while the third section highlights the review of related literature on the factor affecting women's participation in the labour force in Bangladesh. The fourth section starts with a theoretical framework for the study while the fifth section lays down the estimation methods and the next section points out the data analysis. The final section concludes the paper with some policy recommendations.

Objectives of the Study

This study has two objectives. They are to:

i) investigate the impression of multiple variables on women's participation rate in the labour force in Bangladesh; and

ii) find out the steps for increasing women's participation rate in the labour force.

Literature Review

A considerable volume of academic and empirical research has been conducted to reason the factors affecting women's participation in the labour force. Those are described below according to factors studied before.

Bullough et al. (2012) found education as the key factor for broadening the opportunities for women outside the home. He argued that education helped women to gather new ideas and new skills, which broaden their skills outside the home. For that reason, the provision of education and training for females supports them to be more active participants in the workforce, grants them economic freedom and allows them to contribute to economic development (Boserup, 1986; Lincove, 2008). The major factor of salary is the human capital endowment as well as labour force participation. From the future expectation of both monetary and non-monetary benefits, individuals invest in their human capital (Becker, 1993). Furthermore, different authors such as Psacharopoulas and Tzannatos (1991), Aly and Quisi (1996), Azid, Aslam, and Chaudary (2001), Caputo (1997), Garcia (1995), Hafeez and Ahmad (2002), Kozel and Alderman (1990), and Naqvi and Shahnaz (2002) found that education level and participation in the economic activity has a positive and significant relationship.

Different studies show different results for the relationship between the number of children and the rate of women's participation in the labour force. Naqvi and Shahnaz (2002) and Azid et al. (2001) and found a positive relationship between the number of children and the participation of female labour in economic activity. On the other hand, different results are shown by the authors such as Caputo (1997), Cramer (1980), Contreras and Plaza (2010), Contreras, Puentes, and Bravo (2005), Chaudhry and Nasheen (2009), Garcia (1995) and Naqvi and Shahnaz (2002). The studies done by these authors showed a negative and significant influence of the children on women's participation in economic activity.

Rosenzweig and Schultz (1982) did a study that examined the relationship between women's mortality rate and their participation rate in the labour force and they found a negative relationship. However, Faridi et al. (2009) found that women's work participation rate is affected by the mortality rate in Pakistan. They also discovered that women's work participation rate is also affected by population. Esfahani and Shajari (2012) found that the population is positively related to the women's participation rate in the labour force.

Aly and Quisi (1996) and Pampel and Tanaka (1986) found a positive relationship between the Gross Domestic Product (GDP) and women's participation rate in the labour force. However, Karshenas and Moghadam (2011) found the opposite result for the Middle East and North African (MENA) countries. Hamlou, Muzi and Ahmed (2011) found a negative relationship between the women's unemployment rate and their participation in the labour force in MENA countries.

Bridges et al. (2011) studied the factors influencing women's participation rate in the labour force. They emphasized a positive link between the severity of poverty and the probability of women's participation in the labour force. The above study has also shown that women from extremely poor households have a significantly higher probability of participation in the labour force than non-poor. Women from extremely poor households work in low paid wage employment and women from non-poor households participate in self-employment. Furthermore, the authors found that self-employment of women is affected by the presence of young children in the family and wage employment of women is affected by the non-presence of young children in the family.

In the case of Bangladesh, the female participation rate on the labour market is highly influenced by different social factors. As Bangladesh has strong patriarchy, women's labour market participation decision is mainly taken by the men members of the family. According to Kabeer (2012), women's labour market participation decision is determined by different factors. These are male members of the family, social norms and attitudes etc.

Amin (2005) has mainly focused on women's participation in paid work. The author investigated the factors that are linked to women's participation in paid work. The study found several factors for engaging women in paid work. Those are women positioning as household heads, living in urban areas, having less access to microcredit and having less wealth, and having smaller families and less education.

Khandker (1987) observed a positive relationship between the education of a woman and the determinants of women's participation in the labour force in Bangladesh. However, he observed the husband's education of a woman and factors associated with women's participation in the labour force in Bangladesh has a negative relationship.

Using the 2003 Labour force survey data, Rahman (2006) studied the pattern of women's participation in the labour force rate in Bangladesh from 1991 to 2003. He observed that women positioning as household heads, living in urban areas, and having higher education have a positive influence on women's participation in the labour force.

Overall, it is evident from the related literature that several economic factors have a significant effect on women's participation rate in the labour force. Nevertheless, these studies only considered single macroeconomic variables, not multiple ones. Moreover, data analyzed on the above reviewed four studies based on the Bangladesh context, are

relatively older. Therefore, two research gaps are to be established for the foundation of this study; and these are using multiple macroeconomic variables for determining women's participation rate in the labour force in Bangladesh with recent data (from the period of 1991 to 2017) which has not been done before.

Theoretical Framework of the Study

Based on the reviewed literature, it is evident that there is no consensus as to which model to use for modelling women labour supply functions. However, the neoclassical model associated with time allocation is used in this study to understand the study topic. This neoclassical model explains whether a female will participate in the labour market at a real wage rate per hour by looking at the estimation of her time in the market to the worth she puts on her time spent at home or leisure and if she chooses to do as such, how long will be spent on market work (George Borjas, 2013). The number of hours of labour supply and leisure consumption will rely upon the person's market wage (W), individual preferences, and the non-labour pay (V) that individual appreciates.

The utility function of the person will be:

$$U = f(C, L) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where U is the utility index and C represents the consumption goods and L is leisure. Moreover, both C and L are economic goods here.

The time and budget constraints are as follows:

Time constraint: $T = L + H$ ……………………………….(2)

Budget Constraint: $C = (W * H) + V$……………… …(3)

Where L = Leisure

T = Total time available for work and leisure
H = Individual's working hours for pay
W * H = Individual's labour income
V = Individual's non-labour income

Equation (3) can be rewritten in the following way:

$C = W (T - L) + V$………………………………………..(4)

By using the Lagrangian function, the problem of a person's utility maximization can be written as:

$l = U(C, L) + \lambda \{[W(T - L) + V] - C\}$………….. …….(5)

For utility maximization, the first-order conditions are:

$\frac{\partial l}{\partial C} = \frac{\partial U}{\partial C} - \lambda = 0 \quad \therefore MU_c = \lambda$ ………………………(6)

$\frac{\partial l}{\partial L} = \frac{\partial U}{\partial L} - \lambda W = 0 \frac{\partial l}{\partial L} = \frac{\partial U}{\partial L} - \lambda W = 0 \quad \therefore \frac{MU_L}{W} = \lambda \frac{MU_L}{W} = \lambda$

……...……..(7)

From equation (6) and (7), we get

$$\frac{MU_L}{MU_C} = W$$

…… ……..(8)

Equation (8) gives us the utility-maximizing labour supply decision. When income is constant, a rise in W makes leisure more costly. A decrease in V would result in a decrease in leisure time and an increase in working hours, and vice-versa.

Sometimes an individual decides not to participate in the labour force. By using the reservation wage (W*) definition, economic theory can explain this case. Where W* is a measure of an individual's non-market time. The explanation of labour force participation decision of women can easily be made by using this theory: has been successfully used to explain women's labour force participation decision: if W*≥W, she will be willing to participate in the labour force. The theory implies that the number of children and older persons, the number of household earners and marital status increase the value of a person's time at home that is reservation wages.

Women's participation in the labour force depends both on the market time and non-market time. Important determinants for women's participation in the labour force are market wage, preferences, the demand for housework, such as the presence of small children, non-labour income. The value of market time is mainly influenced by the labour market opportunity which is also determined by the growth rate of GDP.

The initial formulation of this study's econometric model relies not only on the neoclassical model but also on the knowledge of the underlying relationship between variables and previous related studies by the researcher himself.

The initial formulation of the econometric model of this study depends not only on the neoclassical model but also on the researcher's knowledge of the underlying relationship between variables and previous related studies. To estimate the factors affecting the women's labour force participation rate of Bangladesh, this study has used the following multiple regression model to estimate the factors affecting the women's participation rate in the labour force of Bangladesh.

$$WPRLF = a + bi\ x_i + e$$

Here

WPRLF = women's participation rate in the labour force which is the dependent variable;
x_i = the independent variables explaining the women's labour force participation;
a = represents intercept;
b_i = the estimated coefficient of the respective independent variables; and
e = the error term with zero mean and constant variance.

Although theoretically, this study can encompass various possible factors which affect WPRLF the study included only some of the important factors likely the female population, the female unemployment rate, growth rate of GDP and rate of fertility. The next section will specify the model of multiple regression analysis for this study and estimate in the latter part of this study.

Methodology

The multiple regression analysis is used to identify the effect of the female population, the female unemployment rate, growth rate of GDP and rate of fertility on the participation rate of women in the labour force. To do this, yearly data from the World Development Indicator has been collected for the year of 1991 to 2017.

$$we\_lf\_pr = a + b_1 (pop\_female) + b_2 (fe\_unem\_rate) + b_3 (gdp\_gr\_rate) + b_4 (fer\_rate) + e_i$$

Where,

we_lf_pr = participation rate of women in labour force

pop_female = female population as a percentage of total population

fe_unem_rate = unemployment rate of female

gdp_gr_rate = GDP growth rate

fer_rate = fertility rate

Where a represents intercepts and b_i gives the estimated coefficient of the respective regressors. e_i denotes an error term capturing all other omitted factors, measurement error and possible misspecification.

Estimation and Results

This study uses the multiple regression model to find out the impact of independent variables on the dependent variable. Table 1 describes the results of this study.

Table1: Regression results for the women's participation rate in the labour force

Variables	Co-efficient	Standard Error	t-Value	p-Value
Constant	-204	45.65	-4.47	0.000
pop_female	4.86*	.9194	5.29	0.000
fe_unem_rate	.0706	.1092	0.65	0.525
gdp_gr_rate	.0068	.1656	0.04	0.968
fer_rate	-2.539*	.3916	-6.49	0.000
F(4, 22) = 198.63				
Prob> F = 0.0000				
R-squared = 0.9731				
Adj R-squared = 0.9682				

Source: Estimation of the author

Note: * denotes significant at 1 per cent level.

The R-squared of the regression is the fraction of the variation in the dependent variable that is accounted for independent variables. The goodness of a model is justified by the R^2 and Adjusted R^2 value, and it can be said that this model can explain 97% of variation and rest of the 3% is explained by errors term.

F-statistics help to test whether the explanatory variables are jointly significant to explain the dependent variable or not. Table 1 shows that the corresponding probability value for F- statistics is 0.0000 which is less than 5%. As a result, the null hypothesis can be rejected and the alternative hypothesis can be accepted which indicates that explanatory variables jointly influence the dependent variable that is the women's participation rate in the labour force.

Table 1 shows that the constant value is -204 and the rate of female population, the unemployment rate of females and growth rate of GDP have a positive impact while the fertility rate has a negative impact on the women's participation rate in the labour force. On the other hand, the result also shows that the female population has a positive significant impact on the women's participation rate in the labour force while the fertility rate has a negative significant impact. When the total population as a whole increase their share of the labour force also increases. In the case of Bangladesh, from the 1990s the growth rate of GDP shows an upward trend. This indicates that economic activities are increasing day by day and the work opportunities are also expanding especially for women. On the other hand, fertility rate also shows a negative trend over time, which indicates that with increasing the economic opportunity for women and at the same time decreasing fertility rate create an additional opportunity for the female to engage additional time in the labour market. It would be the reason for getting a positive association between the population rate of females, and women's participation rate in the labour force. Similarly, the growth rate of GDP and women's participation rate in the labour force are positively related while the fertility rate of women and their participation rate in the labour force are negatively related. However, the growth rate of GDP and female unemployment rate have a positive but insignificant impact on the women's participation rate in the labour force.

Conclusion and Recommendations

This study has discovered the impact of different determinants on women's participation rate in the labour force in Bangladesh. The study concludes that the women population has a positive significant impact and the fertility rate has a negative significant impact on the female participation rate in the labour force.

In Bangladesh, women have to maintain three types of role: productive, reproductive and managing community. For both economic growth and development of the country, the whole working-age population should participate in the labour force. Many women cannot participate in the labour force for their household activities burden. To ensure full labour force participation of women workers, it is necessary to free up their time so that they can engage themselves for productive work. Promoting women's participation in

mainstream economic activities is supported by various measures and policies such as increasing share of expenditure for women development programmes, increasing women's access to government-owned land and credit, encouraging Small to Medium Enterprises (SMEs) and microcredit programmes, improving women's capacity by providing quality education and training etc. However, despite the presence of ample policies and measures for promoting women's participation in the labour market, a substantial amount of barriers also prevails. They include lack of productive inputs, lack of women's time for productive work, market and institution failure for establishing gender equality, women's access to education and skill training, the societal value and practices which prevent women's participation in the labour force etc. It is suggested that policymakers should take steps to increase greater access for women to education, skill training programmes, government-owned land, both micro-credit and credit and different government and non-government services. The policymakers should also take necessary steps to set improved social norms and environment which lift barriers to women's employment. Finally, for becoming a developed country within 2041, Bangladesh needs to utilize her full resources. Without proper utilization of all resources, development is not possible. That is why the government needs more actions to create more job opportunities for women workers and reduce their other constraints to enter into the labour force.

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