

BREAKING THE GLASS CEILING: STUDY OF DETERMINANTS OF WOMEN LABOR FORCE PARTICIPATION RATE ACROSS DEVELOPING NATIONS

Sonia Goel¹, Shreyansh Jain², Suvojit Lahiri Chakravarty³ & Arjun Mittal^{4*}

Associate Professor, Department of Economics, Ramjas College, University of Delhi Delhi, India,
sonia@ramjas.du.ac.in

Student Scholar, Department of Economics, Ramjas College, University of Delhi, Delhi, India
jainshreyansh755@gmail.com

Associate Professor, Department of Economics, Aryabhata College, University of Delhi, Delhi, India
Suvojit50@gmail.com

Assistant Professor, Department of Commerce, Hansraj College, University of Delhi, Delhi, India
dr.arjunmittal@gmail.com **Corresponding Author*

Abstract:

The study attempts to do a cross sectional analysis of the major determinants of the participation rate of the female labour force by using a sample of 95 developing countries for the period of April 2021 to March 2022 when the world was slowly and gradually recovering from the terrible downfall occurred due to Covid pandemic. The main aim of the study is to draw insights into how the willingness of females to work changes concerning various factors like poverty, Gender Development Index (GDI) and male unemployment rate. Ordinary Least Square (OLS) estimation procedure is used to do the analysis. We in our model have used GDI in quadratic form to capture the increasing or decreasing marginal effects. Our study finds that poverty and GDI are important variables in determining the participation rate of the labor force of females. Our study also supports the added worker hypothesis to some extent.

Keywords: Women Labour Force Participation Rate; Gender Development Index; Multidimensional poverty Index; Male Unemployment Rate

1. Introduction

Female population all around the world has faced centuries of humiliation, suffered at the hands of masculine counterparts because of their inability to earn economic bread (Rehn and Sirlea, 2002). With the advent of the Renaissance in the western world, feminist ideas grew stronger and feminists argued for positive changes in the desperate conditions of women. Even with the introduction of modern techniques of assembly line production, it was female laborers who were exposed to the brutalities of the modern capitalist regime. Even in the post-Fordism period, extraction of surplus on part of employers made them highly submissive. By the 20th century, the economic

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and social position of women showed some improvement although there was a long way ahead.

Over the period of late 1990s to 2015, the global rate at which females participate in the labour force has decreased from 52.4% to 49.6% (ILO, 2018). Despite some progress towards gender equality, particularly in the arena of work, on average women are far more disadvantaged than men in the labor market, both in terms of quantity and quality of employment as they tend to be more unemployed, underemployed and vulnerably employed than men (ILO, 2016). Women unemployment which leads to lack of economic resources impacts family cohesion, poverty and gives rise to some women indulging in consuming alcohol to counter depression and leading to violence. At times it also leads to prostitution and thus breaking up of families (Schmitt, 2008). This study attempts to identify reasons that derive participation decisions of women in patrilocal and patrilineal societies where majority of the women are poor due to cultural norms and values, gendered division of assets, and power dynamics between men and women. The study attempts to do cross sectional analysis of the major determinants of the female labour force participation rate by using a sample of 95 countries for the period April 2021 to March 2022 when the world was slowly and gradually recovering from the terrible downfall occurred due to COVID pandemic as shown by the sharp slump in output as well as employment patterns in nations all across the globe.

The paper is organized as follows: The next section reviews the literature. Section 3 gives the data description. Section 4 gives the estimation and the results. Section 5 discusses the concluding remarks. Section 6 discusses some policy implications.

2. Literature Review

Butler (2007) argued that gender is performative; being maintained, created or perpetuated by iterative repetitions while interacting with each other, thus considers women as a category complicated by multiple factors asserting that sex is biological while gender is culturally constructed. Gilman (1898) asserted that women have historically been treated as inferior to their male counterparts highlighting the sexuo-economic relation that forces a woman to rely on her husband and thus a woman's labor become meaningless as a determinant of her social and economic status contributing to the "over-sexing" of women by overemphasizing a woman's secondary sex characteristics. Gilman's theory is not as outdated as we would think and thus the stereotypical housewife is still a reality for many women as per the United Nations report around the world, women do three out of every four hours of unpaid labor highlighting the invisible economy where women labor is trapped.

The decision and ability of women to participate in work is the outcome of various economic and social factors that interact at both the household and societal levels (Sher Verick, ILO). Women possess inherent agency and knowledge that is overlooked by

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policy-makers. Pitiabile condition of women is a new phenomenon in the postmodern world; it includes a century-old saga of injustice (Claudia Goldin, 1986). Various problems associated with the women in going out and work like child rearing, safety issues of children at home, taking care of their household chores and others either do not allow women to participate in the labor market, or if participate, they end up doing work which requires less of their time and effort (Raza et al, 2019). Crowding-out effect could be an important factor leading to a decline in women finding skilled work jobs. Crowding out effect can also be a reason to weaken the direct effect of education on female finding work (Klasen and Pieters, 2015). Since women are largely employed in the sector which includes crop and animal production; a decline in the overall employment in this sector leads women to no choice but sit at home without any work or they shift to the other sectors like construction or manufacturing sectors. This sector usually offers unstable tenured employment for ladies (Mehrotra and Parida, 2017). Another factor is gender discrimination and social norms, which restrict women's ability to enter or stay in the job market (Desai and Jain 1994; Prillaman et al., 2017)

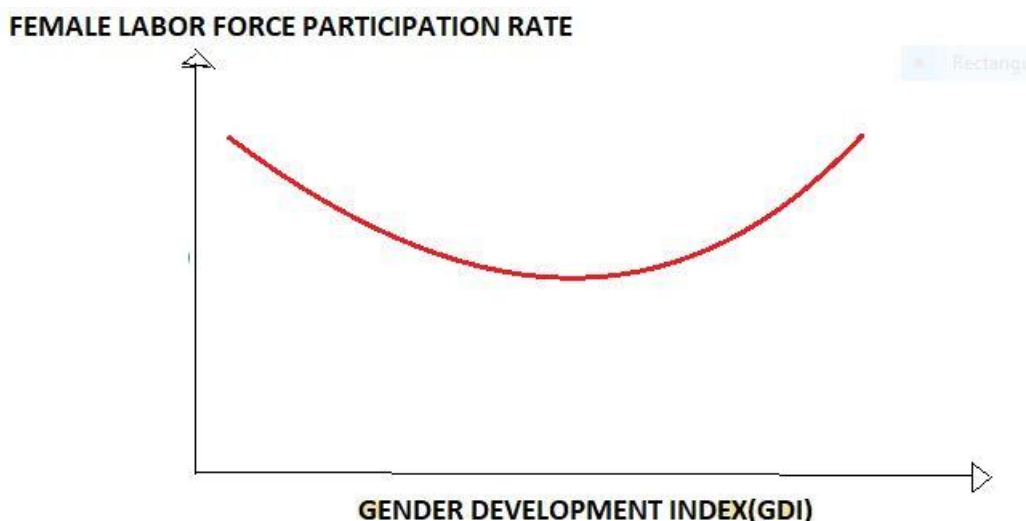
According to Added Worker Hypothesis, an increase in the manpower of married women occurs when their spouses become unemployed, because it is usually believed that married women usually work as subordinate workers or blue collar workers have a larger probability of leaving the job market than their spouses (Humphrey, 1940). Discouraged worker hypothesis on the other hand talks about workers as individuals who avoid and try not to enter the job market labor force due to their expectation of weak job market circumstances and thus non availability of jobs (Fisher and. Nijkamp, 1987). Females living in the places where the severity of joblessness is high are less likely to enter the market to look for a job and work than those women living in regions where the levels of unemployment rates is not so severe (Bičáková 2016; Dagsvik et al, 2013). Largely, the marginally attached workers have been more related to the period of downfall in the economic cycle affecting the females and subordinate or blue collar workers in a family largely (Benati 2001). We on the contrary find in our study, when the world was gradually recovering from the adverse impact that occurred due to COVID pandemic, higher unemployment rate amongst males have led to rise in FLFPR in the various developing nations¹ under study.

Existence of the U shaped curve was found between employment and female educational status (Olsen and Mehta, 2006) which showed illiterate and poorly educated women as well as with university degrees more likely to work than middle educated women. The downward trend in the 'U' is due to rise in incomes because of expansion of markets and shift from farm activities which have been denoted as the income effect on the female participation rate. However, with increase in levels of education, the value of women's time increases a little more, it is found that females move back into the paid jobs, which is reflected in the rising portion of the U-shaped curve. (Mammen and Paxson

¹ The list of 95 developing nations is in appendix 1

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(2000); Goldin (1995)) used cross-sectional data across countries to test this relationship. Tansel (2002) verified this U-shaped relationship within provinces in Turkey across three time periods. Our study supports similar relationship between the FLFPR and the GDI² which is exhibited in empirical analysis.

Figure 1

Source: Author's Plot

Figure 1 presents a quadratic relationship between FLFP and income per capita of 95 countries for the time period under study.

Marcielo and Joana (2008) depict the pivotal part that discrimination against women plays in determining poverty. An increase in wage difference between males and their feminine counterparts can also exacerbate poverty among women. Medeiros and Costa (2006) notes that women have a higher incidence of poverty which links to widening gaps in the quality of life between men and females. Much attention has been drawn to the feminization of poverty in recent years. Women's labor supply acting as an insurance mechanism for households is also consistent with the declining labour and rising household economic status. Bhalotra and Aponte (2012) argued that female participation in rural areas typically rises during times of agrarian distress and decreases when the economy improves. Thus, literature has established the role that poverty plays in determining FLFPR. We in our study have examined the linkages between participation rate of women labor and MPI. It emphasizes the role of poverty which compels women to work. The results show that higher poverty levels make women search for jobs and hence increase their participation rate. Moser (1993) in gender analysis proposed that women's hardships at the time of a terrible and an unforeseen situation such as war,

² GDI incorporates education levels and Gross National Income per capita adjusted for the price level of the country.

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pandemic, natural calamity gets even more worse (Bradshaw 2015). Given this background the present study aims at studying the effect of MPI on FLFPR. It also tries to examine the impact of factors such as MPI and male unemployment rate on FLFPR. We have done the analysis taking 95 developing countries.

3. Data Description

In order to find out the effect on the status of women across nations, we found the female participation rate in work a good indicator of determining the independence and power of women as Verick (2018) argued that female labor supply is both a cause and an effect of progress. As subsequent females come to the job market, economies have the capability to boom rapidly in reaction to increasing hours worked to all persons involved. Women labor supply increases family incomes, which thus helps them reduce their state of being poor and increase their intake of goods and services.

Our study includes a sample of 95 developing nations. These nations have been taken from the Human Development Report of 2021-22. The choice of the 95 developing nations depends on the availability of data on the various variables we intend to use in our study. The cross-sectional study is for the period of April 2021 to March 2022 when the world was slowly recuperating from the unfavourable slowdown that occurred due to COVID pandemic as shown by the sharp slump in output as well as employment patterns in nations all across the globe.

The main variable of interest for this paper is the rate at which females participate in the job market and the variables that can determine this variable like unemployment rate of males (URM), Gender Development Index (GDI) and Multidimensional Poverty Index (MPI) are taken as explanatory variables. Data for GDI, MPI and FLFPR have been taken from Human Development Report of 2021-22, while data for URM is from the Global Economy.com which uses the World Bank database.

Let us now very briefly discuss the variables used in our study.

Labor force is the total of everyone employed or part of the “workforce” and those who do not find employment and are designated as unemployed. Labor force includes the people above 16 years who are either working in return for a monetary benefit or are without a job and are searching for one. The Bureau of Labor Statistics(BLS) computes and publishes the man power involvement rate as the population that ages 16 and above who are working or engaged in looking for employment, divided by the total non-institutionalized, civilian working-age population, where labor force (LF) refers to the number of persons working and not employed but actively looking for work

$$LFPR = (\text{Labor force} / \text{Total civilian, non-institutional population}) * 100 \dots\dots\dots (i)$$

The HDI (Roser, 2014) is an index that measures the key proportion of people's progress. The three key dimensions are longevity measured by life expectancy. Second is the right to education calculated by the number of years a child of school entrance age is

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expected to spend at school and the average number of completed years of education of the grown up population. Third is an acceptable way of life calculated by adjusted per capita Gross National Income of the country.

Existing literature suggests a U-shaped relationship between FLFPR and economic development (Sinha, 1967; Goldin, 1994; Tam 2011). Initial stages in the growth trajectory often corresponds to a de-feminisation of the people who are able to work in a country but females tend to become monetarily more dexterous again as income increases (Rangarajan et. Al, 2011)

The GDI³ was created to rival the more traditional income-based measures of development such as GDP and GNP as it is a distribution sensitive measure that accounts for the human development impact of existing gender gaps in the three components of the Human Development Index (Klasen & Schüler, 2009). GDI considers relative measures of three components. We expect a positive relationship between GDI and FLFPR. We in our model have used GDI in quadratic form to capture the increasing or decreasing additional effects. This variable is used to analyze the above relationship as it incorporates education levels and income levels in it.

The MPI tries to explain poverty in addition to economic deprivations by including access to education and basic infrastructure along with the population proportion that exists or lives below the poverty threshold. The MPI is being developed by UNDP and Oxford University. MPI is defined as follows:

MPI = Incidence of poverty (H) * Intensity (A) of poverty

where incidence of poverty (H) is the fraction of people classified as poor based on the various deprivations they experience. Intensity of poverty (A) is how poor the population is, that is, the average weighted fraction of deprivation being experienced by the impoverished. (A) denotes average deprivation share ⁴

We in our study will analyze the relative share and significance of each variable in determining the FLFPR.

³ Information about Human Development Index(HDI) as an indicator is obtained from [Human Development Index \(HDI\) - Our World in Data](#)

⁴ There are three dimensions and ten indicators used while measuring MPI. The three indicators are health, education and standard of living. Health :Child mortality and Nutrition(each indicator weighted equally at 1/6), Education: Years of schooling and Child school attendance(each indicator weighted equally at 1/6) and Standard of living: Cooking fuel, Sanitation, Drinking water, Electricity, Housing and Assets (each of the six indicators weighted equally at 1/18).

4. Estimation and Results

Our study analyzes the linear relationship of the level of participation on part of females with important variables like male unemployment rate, GDI and multidimensional poverty index. To estimate the extent of effect of all these variables on the rate at which women participate in the job market, Ordinary Least Square (OLS) estimation procedure has been used given by the following equation:

$$FLFPR_i = \beta_1 + \beta_2 * URM_i + \beta_3 * MPI_i + \beta_4 * GDI_i + \beta_5 * Sq(GDI_i) + \varepsilon_i \dots \dots (1)$$

OLS regression is a common regression technique for estimating coefficients of linear regression equations which in our model describe the relationship between LFPR and the right hand variables.

β_2 measure the partial relationship of the LFPR of females with respect to the unemployment rate of males, holding other variables constant.

β_3 is the partial slope coefficient which measures the mean rate of change in FLFPR for a unit change in the value of MPI.

The value of the coefficient of GDI determines the relationship between GDI and FLFPR. The estimated slope is $\widehat{\beta}_4 + 2 \widehat{\beta}_5 GDI$

Table I gives the estimation results.

Table 1

Variables	Coefficients
URM	0.004 (0.015)
MPI	89.95*** (13.75)
GDI	-189.26* (104.93)
Sq(GDI)	226.87*** (67.57)

Source: Authors' calculations based on data. Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1.

The coefficient of unemployment rate of males bears a positive relationship with FLFPR. Our result supports the added worker hypothesis which as discussed above says

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that an increase in male unemployment rate leads to an rise in women labour force participation rate. The reason for the statistically insignificant value could be the surge in aftermaths of Covid-19 pandemic in the first half of the period of study leading to not a significant rise in female participation rate in various countries.

The result shows that the coefficient of GDI is negative and the coefficient of GDI square is positive. Both the coefficients are statistically significant. This implies that at low values of GDI, a unit increase in the GDI value has a declining effect on the FLFPR. At a GDI value of 2.397, the effect becomes positive, FLFPR with respect to GDI increases with the increase in GDI. This leads to a U shaped parabolic relationship between the two variables. This relationship has also been discussed in Figure 1.

The variable MPI bears a positive and statistically significant relationship with the FLFPR. This explains the fact that with an increase in poverty levels, we expect a rise in the FLFPR. The direct and highly significant relationship between the FLFPR and multidimensional poverty index shows that a rise in MPI leads to extreme distress situations leading to an increase in FLFPR.

5. Conclusion

Focusing on the above issues is important because it is considered as a key factor promoting growth that raises standards of living for broad section of a population and to achieve the Sustainable Development Goals (Goal 5) which aims at promoting egalitarianism and extending more autonomy to more ladies (McLanahan et al, 1986).

The magnitude of the partial coefficient of FLFPR with respect to male unemployment rate supports the added worker hypothesis. One of the findings of our paper is the distress situation at aggregate level that does lead to benefits that must accrue to women in the form of increase in FLFPR.

Another finding of our paper is the result that higher poverty index affects females and they are compelled to work as depicted by the positive relationship between multidimensional poverty index and female participation.

The result also shows that GDI plays an important role in determining female labor force participation rate. The discrimination that women face translates into disadvantages in real life, such as decreased job opportunities, lower valuation of services and labor, financial freedom, and freedom of expression. The rigid social norms enslaves the women to come into the workforce, avail economic opportunities and uplift themselves.

Thus our paper brings forth the conclusion that females hold relatively more disadvantageous positions as compared to males in the sphere of their participation to earn their daily bread. Pauperisation, dismal economic situation at a broader level and other factors affect their involvement in the economic output adversely while the factors

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that constitute GDI namely relative educational attainment, relative health conditions and relative per capita income to males have positive impact on their participation.

6. Policy Implications

Our paper suggests two factors which play an important role in determining female participation in work. It's poverty that coerces them to work to keep their bones and skin together. It need not be emphasized that women can play a major role in changing this world into a better place to live in as several studies pointed out. In Latin America for example, a rise in figure of female workers in paid jobs from the period of 2000 and 2010 were approximately 28 percent of the aggregate fall in destitution and disparity of income. Provision of microfinance services in India, SHGs in Bangladesh are good initiatives to bring about the socio-economic upliftment of poor women by opening up self-employment opportunities. Government should build a social security net to boost their morale and confidence in being part of the workforce.

Gender Development Index after reaching a threshold level also leads to a spurt in the rate of participation of women in the factor market. Thus it becomes essential to take steps at micro and macro level to improve the GDI which can result in a spout in the participation of women workforce.

Citing some examples, the Women 20 initiative launched under the G20 Turkey presidency in 2015 aims to promote women's participation in the factor market by eliminating the abnormal gender-based gaps in remuneration, providing patronage to female entrepreneurship and helping women achieve higher leadership positions. Therefore, such steps can go a long way to avoid constraints that hinders involvement of women in the workforce.

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- Human Development Index (HDI) - Our World in Data

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- What is Multidimensional Poverty Index (MPI)? - Public Health Notes

Appendix

Countries involved in our study:

Afghanistan, Albania, Algeria, Angola, Bangladesh, Belize, Benin, Bhutan, Bolivia (Plurinational State), Bosnia and Herzegovina, Botswana, Brazil, Burkina Faso, Burundi, Cambodia, Cameroon, Chad, China, Colombia, Comoros, Congo (Republic of, Brazzaville), Congo, (The Democratic Republic of the), Costa Rica, Côte d’Ivoire (Ivory Coast), Ecuador, Egypt, El Salvador, Eswatini (Swaziland), Ethiopia, Gabon, Gambia, Georgia, Ghana, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Lao People’s Democratic Republic (Laos), Lesotho, Liberia, Libya, Madagascar, Malawi, Maldives, Mali, Mauritania, Mexico, Moldova (Republic), Mongolia, Montenegro, Morocco, Mozambique, Nepal, Nicaragua, Niger, Nigeria, North Macedonia, Pakistan, Palestine, Papua New Guinea, Paraguay, Peru, Philippines, Rwanda, Saint Lucia, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Sri Lanka, Sudan, Suriname, Syrian Arab Republic (Syria), Tajikistan, Tanzania (United Republic), Thailand, Togo, Tonga, Tunisia, Turkmenistan, Uganda, Ukraine, Yemen, Zambia and Zimbabwe.