Women Labour Force in Haryana and its Determinants

Ajad Singh*

(PhD. Research Scholar at IDC, Chandigarh)

Abstract

Every woman is active in some form of economic or non-economic activity. Her involvement in the activities determines their level of empowerment. Women become increasingly economically independent as a result of their participation in economic activities, and they become the primary decision-makers for themselves and their families. Haryana economy is with witnessed tremendous transformation in every sphere. But a low female to male ratio and even lower child sex ratio, low female literacy, and sex-selective abortions in 1990's presented the state with a bad picture. Now declining women's participation in the labour force has also become an issue of gender inequality in economic development. This paper has been initiated to understand the trend of women's LFPR and its primary reason. This study varies from other studies in that it covers more than 25 years instead of shorter periods such as one year. A longer timeframe is analytically favourable because it captures changes in the primary variables of female labour force participation in Haryana and their robustness. This paper examines the trends and major determinants of women's labour force participation in Haryana by using the logit model. The unit-level data of various NSSO rounds were used to estimate the determinant of labour force participation. The paper's main finding is that Family Size, Households Jobs, Years in Education, Urbanisation, Age, and martial Status are significant determinants of women's LFPR. However, social Categories have no significant effect on LFPR. Our model shows that Education Experience, having no job in a household and becoming married have a positive effect on the LFPR and Family size hurts the work participation of women. Living in an urban area compared to the rural area and living in western Haryana in comparison with the Eastern region have a negative impact on LFP both for men and women.

keywords

LFPR, Logit Model, Women, Haryana, Labour force.

Introduction

Haryana has established itself as a progressive state with a thriving economy. Since its inception in 1966, the state has witnessed tremendous transformations. The state's status of women is and has been a source of concern, with a poor sex ratio and even fairly low child sex ratio, low female education, sex-selective abortions, limited socioeconomic participation, a heavy burden of unpaid childcare work, high infant and maternal mortality rates, constraints on public space, and low reproductive health status. Gender disparities can be found in all aspects of life in Haryana, especially in the political, economic, social, and cultural spheres. These variables have also influenced women's decisions to enter the labour field (or not) and choose a job. Working status of women is a crucial determinant in their development toward economic independence, and it has long been regarded as a barometer of their general social well-being. There is a strong correlation between women's employment and their empowered status. Women gain economic independence as a result of their working

position, and they become the primary decision-makers for themselves and their families. Women's economic prosperity makes them stronger socially and even individuals to have their identity within family and society. Women become more aware of their rights as a result of their regular migration for work and experimentation with different contact groups. As a result, women's knowledge and awareness grow, and they gain the ability to make their own decisions. It has the potential to make them aware of their rights, so empowering them. Despite the fact that Haryana has a thriving economy, women's social and economic status remains well behind that of their male counterparts. This distinction has been highlighted when comparing rural and urban areas of residency. Women in rural areas were less independent in decision-making and were financially reliant on their family members; as a result, they were less open to exploiting resources for their own purposes.

Literature survey

In Haryana, female workforce and labour force participation has declined in recent years, and the gap between female and male work participation ratio has increased. The majority of the reduction in the labour force is from rural areas and is largely from poorer households. (Kannan & Raveendran 2012).

Mammen and Paxson (2000) supported the U-shaped hypothesis between the female labour force participation rates and the type of residence - urban versus rural. Female participation is strong in rural subsistence economies, where the majority of households live. Family obligations and agricultural work can be integrated in rural areas, and the household consumes a significant percentage of what is produced. Female participation, on the other hand, is lowest in urbanised, middle-income countries. In metropolitan regions, the separation of home and work environments makes it difficult for a working mother to balance raising a family and job, which explains the lower participation percentages. In high-income countries, female involvement rates are once again high. Because women in these countries are well educated, the opportunity cost of leaving the workforce to care for children is significant. As a result, in this climate, female labour force participation rates are high and fertility rates are low.

Zareen and Lubna (2002) discovered that age, education, and marital status all had a substantial impact on women's economic engagement. Women's involvement in economic activities is also influenced by the job status of the household's head (usually a man), the presence of male family members, and children aged 0 to 5. The authors expected a negative association between the number of children and women's labour force involvement based on previous research, but instead discovered a positive relationship, confirming the welfare improvement argument once more. Kabeer and Natali (2013), it is very evident that economic growth does not guarantee enlargement of the economic opportunities for women as the impact of growth varies across different constructs of gender inequality. Mahata, Kumar and Rai (2017) found that workforce involvement is influenced by societal standards, women's behaviour, and their degree of education. It has been suggested that when women play a larger part in the household economic activities, they will become more empowered.

The present study explores how different Family Sizes, Households Jobs, Years of Education, Urbanisation, Age Group, Caste and martial Status affect labour force participation in Haryana. This study varies from other studies in that it covers more than 25 years instead of shorter periods such as one year. A longer timeframe is analytically favourable because it captures changes in the primary variables of female labour force participation in Haryana and their robustness. Such knowledge is vital for analysing existing policies and developing new ones to enhance female labour force participation, which is a precondition for Haryana's gender-inclusive economic development.

Objective of the study
1. To examine the trends of Women Labour Force Participation in Haryana since 1993-94
2. To find out major determinant factor of Women labour force participation

Data Methodology

data

The analysis in this paper is based on secondary data. The secondary data source is various rounds of NSSO household data on 'Employment-Unemployment', covering multiple employment and unemployment dimensions. The household data from the last four significant rounds of NSSO quinquennial rounds, i.e.50th (1993-94), 55th (1999-2000), 61st (2004- 05) and 68th (2010-11) and three annual Periodic Labour Force Data, of 2017-18, 2018-19, 2019-20 on Employment and Unemployment is used. The extraction of the data from unit-level data has been done using R software. All the results in graphs and tables are the author's own estimation from NSSO's unit-level data. However, the limitation of this NSSO data is that the analysis cannot be disaggregated below the regional level.

Methods (Logit Model)

In the early twentieth century, the biological sciences adopted logistic regression. Following that, this method became extremely popular among academics from other fields, and it is now used to understand a wide range of social scientific applications. When the dependent variable (target) is categorical and a set of independent variables can be either qualitative or quantitative, logistic regression is a statistical approach for estimating the parameter of a model. The model predicts the logit transformation of the event probability in logistic regression.

To understand logit model we should know the following concept i.e. *Odds*, *Odds Ratio*, *Logit Function*, *Average Margin*, *Average Margin Effect*

Odds, which describes the ratio of success to ratio of failure. Range of odds can be any number between (0, ∞). *Odds Ratio* represents which group (Married/Unmarried) has better odds of success, and it's given by calculating the ratio of odds for each group. , and the formula for the Odd ratio is as given below.

$$\text{Odds Ratio} = \frac{P_i}{1 - P_i} = \frac{\text{Probability of presence}}{\text{Probability of absence}}$$

$$\frac{P_i}{1 - P_i} = e^{\beta_0 + \beta_1 X_1 + \beta_2 D + \ldots + \beta_n X_n}$$

taking log both side, the Odd ratio becomes Logit Model

$$\ln\left[\frac{P_i}{1 - P_i}\right] = \beta_0 + \beta_1 X_1 + \beta_2 D + + \ldots + \beta_n X_n$$

By applying Maximum likelihood Estimation (MLE) on Logit function, parameters $\beta_0, \beta_1, \beta_2, \ldots, \beta_n$ is estimated, and the probability of success can be estimated by putting the estimated parameter value and value of explanatory variables in the given below equation.

$$\widehat{P_i} = \frac{1}{1 + e^{-}(\beta_0 + \beta_1 X_1 + \beta_2 D + \ldots + \beta_n X_n)}$$

Marginal Effect at mean

The marginal effect of Xi is the change in the probability of the outcome for a change in Xi, holding other explanatory variables at specific values. If the rest of the variables are put at their mean value, it is called the Marginal effect at the mean. It can be estimated by giving the below equation.

$$\frac{\partial P_i}{\partial X_i} = \frac{1}{\left(1 + \widehat{P_i}\right)^2} * \beta_i\left(1 + \widehat{P_i}\right)$$

Logit Model for Women Labour Force participation

There are lot of factors which affect working age person to take participation in labour force. For simplification we have assumed that followings are major factors that have impact on LFPR.

$$LFPR = f\begin{pmatrix} \text{HouseholdSize}, \text{YearinEducation}, \text{HHJobs}, \dfrac{Urban}{Rural}, AgeGroups, \\ Married/Notmarried, \text{CasteCatagory}, Region \end{pmatrix}$$

Result

Trends in LFPR of Male and Female in Rural and Urban Haryana

Compared to other states of India, the labour force participation of working age (15-64) women in Haryana is very low in rural and urban areas. Astonishingly, the women's labour force participation rate (LFPR) had declined from 414/1000 in Fy1994 to 168/1000 in Fy2020, while participation in the women's education has increased from 58/1000 to 150/1000 in the respective years. this is with the help of two indicators (i.e. Labour Force Participation rate and Education rate) of the working-age population of Haryana, we are trying to explain the present situation of the women in Haryana in comparison to their male counterparts. Figure 1 shows showing LFPR pattern, and Figure 2 explains the increasing participation of women in educational attainment. The below figure 1 showcases the conditions of women's labour force participation in rural and urban Haryana. The labour force consists of women from the age group of 15-64 years. In rural Haryana, in 1993-94, 474 out of 1000 women were part of the labour force. However, the current situation depicts that only 140 women out of 1000 were part of the labour force in 2019-20. However, there was a hike in 2004-05, which shows that women's labour force participation was 516 out of 1000 women. However, the situation worsens in consecutive years, leading to a fall from 516 to 233 women out of 1000 in 2011-12 and to 140 in 2019-20. While analysing the data of Urban Haryana, the situation of women's labour force participation is much more stable than in Rural Haryana. Though the overall participation of women in the labour force has declined in urban Haryana, i.e., 253 per 1000 women in 1993-94 to 220 per 1000 women in 2019-20, the change is more minor concerning in urban areas. Here, men's LFPR in rural and urban areas are similar, and a slight decline is noticed.
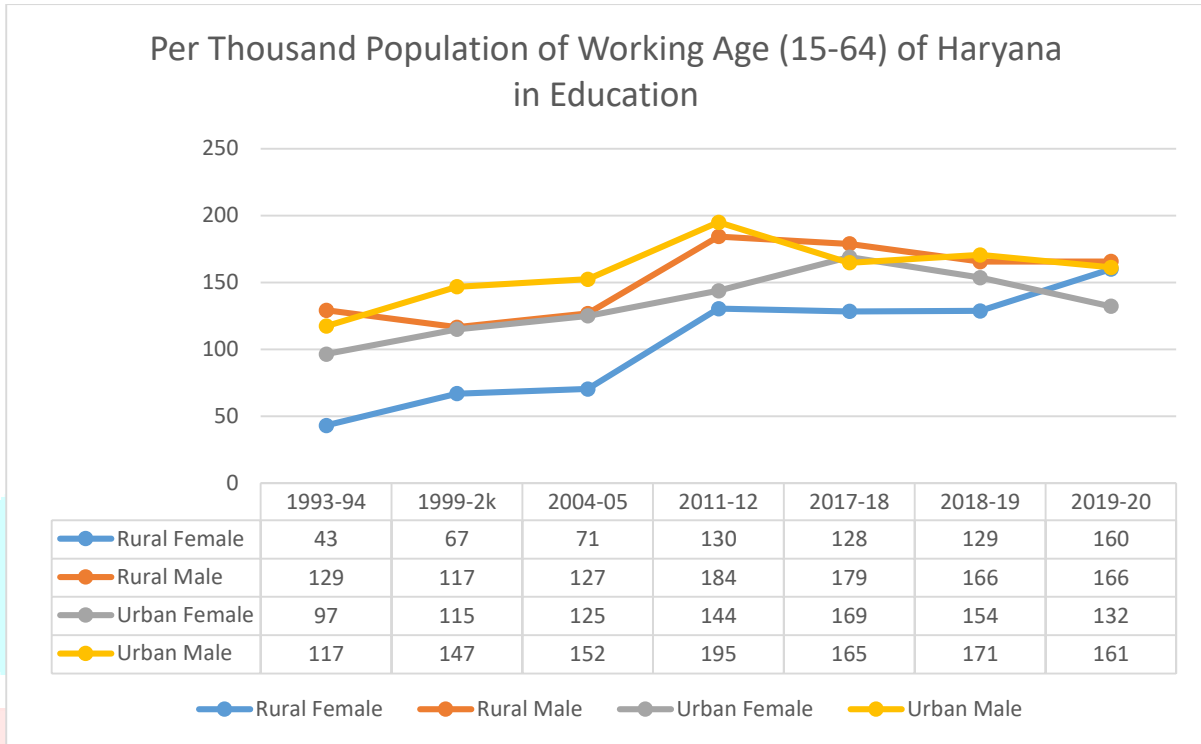
Figure 1
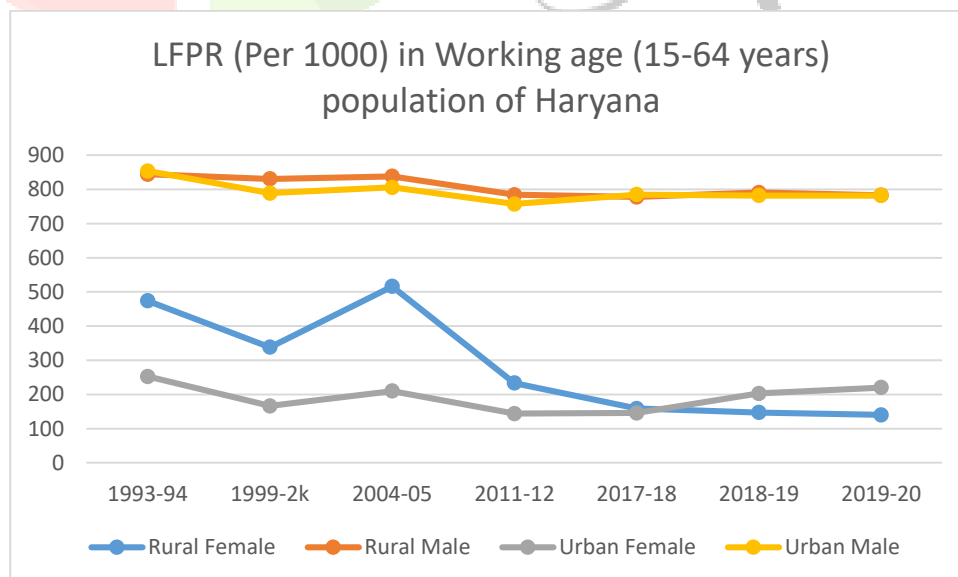
Note:- Author's self-estimation from unit level data of NSSO's various rounds

Figure 2 shows trends in Education participation among the working Age population of rural and urban Haryana among both genders. It is clear that in Fy 1994, there was third participation of the rural female in education participation compared to the rural female. It is very heartening to see that gender inequality in education participation has finished with passing the time. The latest data shows that rural female participation is as high as males and more than urban females. The credit for this remarkable inclusiveness in education goes to the government policies and social awareness in the rural area for female

Figure 2

Per Thousand Population of Working Age (15-64) of Haryana in Education

	1993-94	1999-2k	2004-05	2011-12	2017-18	2018-19	2019-20
Rural Female	43	67	71	130	128	129	160
Rural Male	129	117	127	184	179	166	166
Urban Female	97	115	125	144	169	154	132
Urban Male	117	147	152	195	165	171	161

Note:- Author's self estimation from unit level data of NSSO's various rounds

education. Here one more thing is also noticed urban male, urban female and rural male participation in education is on a declining trend. This may be due to unemployment among educated youth. From the above graphs, it is clear that working-age women in Haryana record mixed progress. On the one hand, participation in education is increasing; on the other hand, the LFPR is steeply declining, particularly among rural women.

Determinants of LFPR for Female and Male in Haryana and its changes

Logit Model for Women Labour Force participation

There are many factors that affect working-age women to participate in the labour force. For simplification, we have assumed that the followings are significant factors that have an impact on LFPR.

$$LFP = f \begin{pmatrix} \text{Household Size, Year in Education,} \\ \text{HHJobs,} \\ \dfrac{Urban}{Rural}, \\ AgeGroups, \dfrac{Married}{Notmarried}, \\ CasteCatagory, Region \end{pmatrix}$$

Table 1

Determinant of Labour Force Participation in Haryana estimated by Logit Model

VARIABLES	Marginal Effect at means					
	Female			Male		
	(1993-94)	(2017-18)	(2019-20)	(1993-94)	(2017-18)	(2019-20)
Family size	-0.106***	-0.010***	-0.019***	-0.016***	-0.028***	-0.025***
Year in Education	-0.005	0.001**	0.002***	-0.003***	0.002*	0.002**
No. of Jobs	0.806***	0.162***	0.186***	0.085***	0.139***	0.131***
Urban/ Rural	-0.035	-0.001	0.005	0.001	-0.017**	-0.014*
30to44 Age/15-29 Age	0.275***	0.048***	0.100***	0.064***	0.108***	0.101***
45-64 Age/15-29 Age	-0.048*	0.012*	0.013*	-0.002	-0.118***	-0.139***
Married/Unmarried	0.290***	0.027***	0.017**	0.287***	0.409***	0.402***
Others/ Unmarried	0.160***	0.028**	0.021	0.211***	0.322***	0.352***
OBC/SCST		-0.000	-0.017*		-0.009	0.011
General/SCST	-0.040	-0.003	-0.020**	-0.007	0.005	-0.015
Western/ Eastern	-0.018	0.001	-0.001	0.001	-0.045***	-0.017**
Observations	2,453	3,837	3,794	2,718	4,328	4,261

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The above results of logit model of female labour force participation during 1993-94, Family Size, Households Jobs, Years in Education, Urbanization, Age Group, Caste and martial Status of the person affect labour force participation in Haryana. Logit regression function was carried out in the period 1993-94, 2017-18 and 2019-20 to gauge the impact of a few factors on the female labour force in Haryana. The explanatory variables taken were the Family Size, Households Jobs, Years in Education, Urbanization, Age Group, Caste and martial Status. The variables were taken for ages 15 to 64 years. The logit function was estimated in absolute terms and expressed in marginal effect at means. The results show that family size consistently has a significant negative relationship for both males and females. Table 1 shows that in 1993-94, the increment of one member in a family decreased 10.6 per cent chance for women to participate in the labour force. The impact of family size is still in 2019-20 also. Male participation in the labour force is also affected inversely by family size. The second explanatory variable is the year (spent) in education. It declined the chance of LFP in 1993-94, but now this increases the chance of LFP for both male-female significantly. The third explanatory variable is the total number of members in jobs; this factor was/is significant for both males and females. It increases the chance of LFP. The fourth explanatory variable is urbanisation. The effect of Urbanisation on LFP is significantly negative for males from 2017-to 18 and 2019-to 20. However, for women, urbanisation does not have a significant role. The following variable is age groups. We have distributed the working person into three groups. A young group of ages 15-29, a Medium age group of ages 30 to 44 years and third one ages 45 to 64 years. It is found that the medium age group has significantly more chance to join the LFP. Marital status as a variable was also included. It is found that both males and females have more to join Labour Force after being married. For males, marriage increases 40 per cent chance of joining the labour force. All things being equal, married and widowed/divorced women and men are more likely to be active in the labour market participation than not married ones. Caste plays a vital role in society. However, in Haryana, there are no significant differences in joining the labour force in different caste categories. The last variable is the region of Haryana where the person belongs. Haryana is divided by NSSO into two regions Eastern and western. Our study found that living in the western region decreases the chance of participation in the labour force significantly, particularly for males.

Conclusion and recommendation

The above results show that women's participation in the labour force has been falling consistently, and women's participation in domestic work has increased. However, participation in education has also increased. The change is much noticed in the rural area compared to urban spaces. The study concludes that Households Jobs, Years in Education, Urbanization, Age Group and martial Status have a significant impact on female and male labour force participation. However, an important conclusion drawn in this study is that the caste factor is not a significant factor for LFPR.

references

Naqvi, Z. F., Shahnaz, L., & Arif, G. M. (2002). How do women decide to work in Pakistan?[with comments]. The Pakistan development review, 495-513.

Faridi, M. Z., Malik, S., & Basit, A. B. (2009). Impact of Education on Female Labour Force Participation in Pakistan: Empirical Evidence from Primary Data Analysis. Pakistan Journal of Social Sciences (PJSS), 29(1).

Mahata, D., Kumar, A., & Rai, A. K. (2017). Female Work Force Participation and Women Empowerment in Haryana. International Journal of Humanities and Social Sciences, 11(4), 1039.

Kannan, K. P. and G Raveendran (2012), "Counting and Profiling the Missing Labour Force" Economic and Political Weekly, Vol. XLVII (6)

Kabeer, Naila, and Luisa Natali (2013), "Gender Equality and Economic Growth: Is There a Win-Win?" IDS Working Paper No.417.

Mammen, K., & Paxson, C. (2000). Women's work and economic development. Journal of economic perspectives, 14(4), 141-164.