



AN ECONOMETRIC ANALYSIS OF TRENDS AND PATTERNS OF URBAN FEMALE WORKFORCE PARTICIPATION RATE IN INDIA –ACROSS STATE STUDY

Economics

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ABSTRACT

Population, workforce and employment are closely interrelated and change in the size, composition and distribution of the population will alter the demographic structure of the labour force. Participation in labour force varies among cultures, across age groups and between sexes. Census or labour surveys in different settings across the globe highlight relatively low Labour Force Participation Rate of women vis-à-vis men and significant variation in female participation rate among countries. Within urban India, the across state study has carved out a separate niche for itself in development discourse due to its impressive performance over the years in the demographic and social development front. However, it is certainly paradoxical that, in such a society well acknowledged for accounting higher status and position to women, participation of the women in the labour force has been consistently on a decline. Such a paradox deserves close scrutiny. Thus this paper tries to investigate the determine factors which affect the urban Female Workforce Participation Rate (FWPR) in across state study in India.

KEYWORDS:

Workforce Participation Rate, urbanization, labour force

INTRODUCTION:

Women's economic productivity is a critical factor, as the dependence of the family on their contribution to household resources increases with the poverty status of the household (Mahapatra, 2002). Thus, it has been maintained that making women more productive – hence more effective income earner will reduce their dependency and enhance their status, besides helping with reducing fertility and slow down population growth, improving child health and nutrition status, bestowing greater decision making power on the women, both inside as well as outside the household and increase aggregate labour productivity and ensure speedy growth in key economic sectors (World Bank, 1991; Gopalan, 1995). In conventional wisdom of the trends and patterns of female work participation rate are driven by “supply side” factors, with income gains from development gradually allowing more women to stay at home, a preferred choice in culturally traditional environment. Authors like Olsen et. al. (2006), Chowdhury (2011) and Neff et. al. (2012) have argued that social and cultural barriers in a predominantly patriarchal society like India can explain women's work choices.

A few studies have paid attention to “Demand-side” factors to explain the observed decline in this rate. The implicit hypothesis is that the number and type of jobs available matters. According to Hirway (2012) a sizable part of female employment is related to home-based and subsidiary work, which is not adequately captured by NSS. Klasen et. al. (2012) focus on female work force participation rate in urban areas and find that the decline is explained by a combination of increasing household incomes and decreasing white colour jobs, especially for educated women.

A country's economic development crucially depends upon the participation rates of its women as they constitute around 50% of its human resources (National Institute of Public Cooperation and Child Development 2010. Statistics of women in India.) Not only that, women's participation in the work force as compared to men is also an important determinant of their social status (Mammen, 2000). Women's employment is crucial for raising their living standards and well-being. However, economic well-being and welfare of women may be improved if they are engaged in low-paying distress-driven work (Srivastava and Srivastava, 2009). Women's participation in the workforce assumes more importance in the case of developing countries like India. However, the role of women in economic activity has been increasing in recent years. Thus, specifically this study aims to identify and explain various demographic and socio-economic factors responsible for the observed levels and changing patterns of FWPR across the states in India under consideration since 1981.

MATERIALS AND METHODS

The levels and trends in employment at the macro level are analyzed in across state study in urban India with the help of data from population census constructed in every ten years. Apart from the census data published by Registrar General of India and sample survey data sources, this study also uses data from National Family Health Survey

report, data from India Development Report, different relevant data published by Central Statistical Organization and Handbook of Statistics on Indian Economy, published by Reserve Bank of India.

The initial formulation of any econometric model depends upon economic theory, our own knowledge of the underlying relationship among variables. All the variables in the study have two data sets one for rural area and other for urban area. The regression equation is constructed for urban variation in women's workforce participation by using different sets of endogenous variables viz., Literacy Rate (LIT), Urbanization Rate (UR), Percentage of People under the Poverty Line (PPPL), and Percentage of Female Population in Total Population (FP) in urban areas. The aim is to identify the factors which may determine the trends and patterns of workforce participation rate of women. The following using Panel Regression analysis has been used in the study to estimate the variation in urban women's workforce participation rate in selected 15 states in India.

We investigate the following equation:

$$\ln(FWPR)_{it} = \alpha_i + \beta_1 \ln(LIT)_{it} + \beta_2 \ln(UR)_{it} + \beta_3 \ln(PPPL)_{it} + \beta_4 \ln(FP)_{it} + \epsilon_i + u_{it}$$

Where, FWPR = Female Work Participation Rate

LIT = Literacy Rate

UR = Urbanization Rate

PPPL = Percentage of people under the poverty line

FP = Percentage of Female Population in total population

$i \in$ = Individual specific effect (or cross section or individual

specific error component) u_{it} = Pure Random Shock (Combined time series and cross section error component)

i = States (panels) identified using a numeric key, $i = 1, 2, \dots, 15$; t = time period ranging from 1981-2001.

First of all we justify whether there is multicollinearity or not among the regressors. For this we introduce Variance Inflation Factor (VIF) to detect collinearity (also called multicollinearity) among predictors in a multiple linear regression model.

As mentioned above, data pertaining to three different decades for state level and two different decades for district level over a range of the periods 1981 – 2001 for state level and 1991-2001 for district level has been used. The main techniques used in this study to estimate the coefficient of explanatory variables are: pooled OLS estimation, fixed effects estimation and Random effects estimation. Though the pooled OLS estimation technique is not shown here. This is because in an OLS regression, it is likely that omitted variables (captured by the error term) that affect the dependent variable in one year will also do so in later years. Hence, the model has been estimated using the econometric technique mentioned above and then tests (Hausman Test) to be done to select the Random Effect estimation technique, the most reliable estimates.

RESULTS AND DISCUSSION

Table-1 shows the values of mean VIFs and also the tolerance values for urban areas in across state study in India.

Table-1: VIF and tolerance values for state urban areas

FWPR	Coefficient	t	p
LIT	‘+’	‘+’	0.276
UR	‘+’	‘+’	0.001
FP	‘+’	‘+’	0.015
PPPL	‘-’	‘-’	0.010
CONSTANT	‘-’	‘-’	0.001
Variable	VIF	1/VIF	
LIT	1.03	0.9696	
UR	1.07	0.9319	
FP	1.02	0.9804	
PPPL	1.06	0.9422	
Mean Value	1.05		

Source: Author's calculation

Table-1 shows the tolerance values are greater than 0.1 and the mean values of VIFs are all less than 10. So, we may conclude that our model is free from the problem of multicollinearity at all i.e., insufficient multicollinearity exists into this model. Now, we want to go through the actual estimation results which this chapter obtains by applying the 'STATA software' for Panel Data.

Now this paper concentrates on the across-state urban areas study under consideration. Table -2 shows this.

Table -2: State-urban results
Fixed effects (within) regression
Group Variable: State

FWPR	Coefficient	t	p	t
LIT	0.5100 (0.4462)	1.14	0.263	
FP	6.6575 (8.0827)	0.82	0.418	
UR	0.6261(0.4257)	1.47	0.153	
PPPL	-0.4121(0.1063)	-2.64	0.014	
Constant	-25.95051 (30.6403)	-0.85	0.405	

Random effect GLS regression
Group variable: State

FWPR	Coefficient	t	p	t
LIT	0.1965 (0.1786)	1.10	0.271	
FP	8.1389* (3.1196)	2.61	0.00 ^a	
UR	0.8046* (0.3399)	2.37	0.018	
PPPL	-0.3650377* (0.1169373)	-3.12	0.002	
Constant	-31.34406* (12.0986)	-2.59	0.011	

Hausman-Specification Test

	Coefficient s (b) Fixed	Coefficients (B) Random	(b-B) Difference	Sq. rt. [diag (-)] standard error
LIT	0.5100	0.1965	0.3135	0.4089
FP	6.6575	8.1389	-1.4813	7.4564
UR	0.6261	0.8046	-0.1784	0.2563
PPPL	-0.4121	-0.3650	-0.0470	0.1037

Source: Author's Calculation

Note: (I) UR $\Rightarrow$ urbanisation Rate. All other variables are abbreviated in the same line as Table (8.5). (ii)*

$\Rightarrow$ 1% level of significance. Standard Errors are in the parenthesis. Overall R Square = 0.5956 = consistent under H_0 and H_a obtained from Xtreg

B = Inconsistent under H_a , efficient under H_0 ;

$$\chi^2(4) = (b - B)'[(V_b - V_B)^{-1}(-1)][b - B] = 1.68.$$

Prob > χ^2 = 0.7939. This implies that χ^2 is not significant at 5% level of significance. So, we cannot reject the null hypothesis H_0 . Hence, it is better to fit Random Effect.

Table -2 establishes the Random effect estimation procedure in across state urban areas study. In Fixed effect estimation technique only one explanatory variable is significant but rest of all explanatory variables is insignificant. But in Random effect estimation technique, all the explanatory variables are significant at 1% level of significance. Now, this portion tries to analyze the variation in urban FWPR in across state study considering the impact of all the explanatory variables under consideration.

The first explanatory variable which affects the urban FWPR is the rate of urbanization. As urbanization rate increases may increase the urban FWPR. Urbanization implies as the proportion of the total population living in areas classed as urban-reflects transformations in national economics, with growing numbers of people moving away from employment in agriculture and into industry and service Sectors and in the process increasing their productivity. The 'Urbanization Rate' (UR) has a significant positive influence on the variation of urban FWPR in across state study under consideration. There may be several reasons for this. Firstly, in short, the urban scenario in the post-Independence period was characterized by dualism. The developed states attracted population in urban areas due to industrialization and infrastructure investment but this was largely in and around large cities and upcoming industrial centers. Interestingly, the backward states too—particularly their backward districts and small and medium towns—experienced more rapid urban growth. This can be partly attributed to govt. instrument in the district and taluka headquarters, programmes of urban industrial dispersal and transfer of funds from the states to urban local bodies through a needs-based or what is particularly known as 'gap filling' approach. A large part of rural-urban migration into small towns from this rural hinterland in backward states can, however, be explained in terms of push factors, owing to the lack of diversification in the agrarian economy (Bhalotra, S.R. and M.Umane-Apoute, 2012). Secondly, urbanization is an integral part of economic development. As the economy develops across the states under consideration, there is an increase in Per Capita Income (PCI) and also in the demand for non-farm goods in the economy. These goods are heavily land-dependent and use none of other factors of production, especially labour and capital. They are used the cheaper women labour if produced in the urban sector of the economy, since urban settlements enjoy economics of agglomeration in manufacturing, services and provision of infrastructure. Economic growth influences the rate of urbanization, while urbanization in turn affects the rate at which the economy grows. As the states are more urbanized, the share of National Income that originates in the urban sector also increases. This will create additional employment for all workers, male and female both. Thus, people like to live near their place of work. Economics of scale and the cost of transport cause concentration of production and people in a specific location. Most services are produced on a small scale and requisite face-to-face contract of the producers with customers and are therefore limited to areas where people and production of goods is concentrated (Abraham, Vinoj, 2009). Hence, this may increase the FWPR in urban areas in across states under consideration. Thirdly, the degree of urbanization is suggested as a determinant of the Female labour Force Participation (FLFP), affecting the numbers of jobs available and their accessibility (King, A.G., 1978). Urban area may offer more rapid employment opportunities than rural areas. Thus, the higher the proportion of the population living in urban areas, there will be an increase in FWPR. Economic growth as an overall measure of the general economic conditions may determine the FLFP because higher economic growth means greater availability of jobs and thus higher FLFP (Bhalotra S.R and M.Umana-Apoute, 2012). Fourthly, lack of employment opportunities in rural areas and the pressure to contribute to family income, the desire for personal freedoms or to escape social or cultural constraints, couple with low levels of education and the search for often non-existent formal jobs push migrant women into informal employment often the only jobs open to them are the “feminist occupations” at domestic maids and caregivers in other people's homes, as helpers and cleaners in restaurants and hotels, as sales girls and small unregistered industrial workshops (often sweetshops)—jobs which are not or are only partially covered by labour law and social protection provisions (Amitabh Kundu, 2011). Fifthly, urban fertility rates are nevertheless generally lower than in rural areas. This can be experienced by a number of reasons: the higher cost (both monetary and in time) for parents to bring up each individual child; higher levels of education or exposure to choice and different lifestyle models than in rural settings, including latter marriage (at an older age especially for women) than in rural areas increased access to contraception and greater engagement of women in wage-

employment. Thus, this may increase the Workforce Participation Rate of women workers (Bhalotra S.R and M.Umana-Apoute, 2012). Sixthly, to a large extent, the feminization of the global labour force goes hand-in-hand with urbanization, as it reflects a number of interrelated factors. These include the decrease fertility rates, increasing levels of education and changing aspirations especially among young women and the need for cash incomes due to increasing costs of living associated with the privatization of basic services and cuts the public welfare services (Abraham Vinoj, 2009). The Second explanatory variable which is significant at 1% level of significance is the percentage of people under the poverty line. As this percentage increases, it has a negative impact on urban FWPR. This can be happened in terms of several factors under consideration. Generally, the increase in prices of a common man's basic needs had made the life of a common man difficult and this makes very difficult to meet the minimum needs for lower income groups. The income earned by the poor people is insufficient to buy them the basic necessities of life and get them even two meals a day. Due to the lack of nutrition they are unable to do any physical work and hence they remain poor. Firstly, these types of women are basically engaged in most of the informal activities. There is a vast body of empirical research (Actionaid, 2012) that documents the nature of working conditions of most of these women. This includes low wages, delay or non-payment of wages, long working hours, deadline pressure, precarious or non-existent job security and medical insurance, sexual harassment, health and safety hazards, use of intimidation tactics dissent. The outsourcing of production also resulted in the rapid emergence of home—based work among women in the urban floor areas in different states in India. Such subcontracted work largely occurs under highly exploitative conditions, it is difficult to regulate and does not offer women even the option of mobility. This may lead to the decrease in WPR of women in urban areas. Women in urban areas also engage in a wide range of self-employed activities in the informal economy such as street vending, domestic work, sex work and waste picking, all of which present various risks and vulnerability. Secondly, the concept of unpaid care work performed by urban women. This refers to activities such as cooking, cleaning, caring for others and community work. For urban women living in poverty, this workload tends to be even higher as they lack access to basic amenities and public services. This also decreases their work participation. Thirdly, the growth in developing economics like India has created opportunities for people but women are worse affected in the new economy growth also. The developing economics like India have started to use the cost cutting method on the name of competition. Women have traditionally taken on more manual, engaged in low paid jobs; their positions are jeopardy with the introduction of mechanization and technique. Modern occupations are not open to women due to lack of necessary training and skills. Mechanization of many jobs led to benefit of male workers but not to women, even men replaced women in some areas where mechanization was introduced. Therefore, all these may have to the decline in work participation by women in across state study under consideration. Fourthly, poverty is seen as the highest barrier to education in India making the direct costs of schooling too expensive for many families. Poor families thus tend to either fail to enroll their children into schools or withdraw them prematurely from primary schools. Poverty can also be expected to be the most pervasive barrier to education for female children. This can be expected to have a negative effect on school attendance in general and for the female child in particular. Thus, less or poor education levels leads to no options for them to work in the labour market. The third explanatory variable viz., the percentage of female population in total population has significantly determined the urban FWPR at 1% level of significance. As the level of this population increases, this has a positive impact on the variation of the urban FWPR in across state study under consideration. There may be several reasons for this. There are several occupational categories where urban women are more or less to be employed. The segment of occupations in which women, especially visible in mushrooming urban retail units is that of sales person, shop assistance and related workers. Another occupational segment where women have experienced an increase in terms of net additional employment over time is that of hotels and restaurant keepers and a cooks, waiters, bartenders and related domestic workers. This would include all the urban self-employed small enterprises on pavements and highway roads as well as those mushrooming in malls and shopping complex/multiplexes. One stereotypical category of occupation where women are predominantly involved in urban area is that of maids and other housekeeping service workers. It is the foremost occupation for gathering additional employment in urban areas. Hair dressers, barbers, beauticians, and related works have

increased in urban areas. This may also reflected in the increasing demand for skill/training courses among young girls for beauty courses and the number of beauty parlours mushrooming especially in the urban locations. BPO companies are considered to be 'women friendly' places to work, easy availability of jobs and supposed flexibility of the work. These jobs are attracted a large number of female persons throughout India (Mehrotra S; Parida J; Sinhas and Gandhi, 2014).

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REFERENCES

1. Abraham, Vinoj.2009.'Employment Growth in India: distress driven, Economic and Political Economy (EPW), x1 iv(16):97
2. Actionaid, 2012.'Young women: life choices and livelihoods in poor urban women.'
3. Bhalotra S. R. and M. Umana-Apoute, 2012.'The dynamics of women's labour supply in developing countries'. Institute for the study of labour working paper.
4. Chowdhury, Subhanil, 2011. 'Employment in India: what does the latest data show?'
5. Gopalan Sarala, 1995.' Women and employment in India', New Delhi: HarAnand Publication, pp. 21-3.
6. Hirway Indira, 2002. 'Employment and unemployment situation in India in 1990s: How good are NSS data', EPW May 25, pp. 2027-2036
7. Klasen, S and Pieters, J, 2012. 'Push or pull? Drivers of Female labour force participation during India's economic boom'. IZA Discussion paper No. 6395.
8. Kundu, A, 2011.'Trends and process of urbanization in India', Human settlements growth IIED, population and development branch, UNFPA.
9. Mahapatra, Suhasini, 2002.'Women participation in Labour Force'. New Delhi: Rajat publications, pp. 46-54.
10. Mammen, Kristan and Christina Paxon, 2008. 'Women's work and economic development. The Journal of Economic Perspective, 14(4):141-164.
11. Mehrotra, S.; Parida J.; Sinhas and Gandhi, A. 2014.' Explaining employment trends in Indian economy: 1993-'95 to 2011-'12', EPW, Vol.49, No. 32, pp. 49-57.
12. Olsen, Wendy and Smith Mehta, 2006. 'A pluralist account of Labour Participation in India' working paper Global poverty research group.
13. Reneva Jhabvala and Shalini Sinha' 2002. 'Liberalization and women workers', EPW, vol. 21, May 25-31.
14. Srivastava, N. and Srivastava, R., 2009. 'Women work and employment outcomes in rural India'. FAO-IFAD-ILO, workshop on gaps, trends and current dimensions in agricultural and rural employment.
15. World Bank. 1991. 'Gender and poverty in India, Report 8072-IN: Washington DC.