# Female Labour Force Participation in Assam: A District Level Analysis 

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#### Abstract

Study on female's participation in labour force has been considered as a matter of great concern by researchers as well as policy makers as females constitute around half of human resources, and thus, potentially, half of its labour force. In this paper, an attempt has been made to analyse the pattern of female labour force participation rate among different districts of Assam. The paper also tries to evaluate the various factors that can affect the female labour force participation rate in Assam. The study uses secondary data from various publications of the Office of the Registrar General and Census Commissioner of India based on the Census 2001 and 2011 survey. The analysis depicts that the female labour force participation rate is not uniform throughout the state and is considerably less than the male labour force participation rate in all the districts of Assam. The district Jorhat has been found as a district where the overall best female labour force participation rate has been reflected throughout the state. The result of the study also indicate that the average age at Marriage, Male work Participation Rate and Percentage of Scheduled Caste Population have a positive impact on the participation of females in the labour force.


Key Words : Females, Labour force participation, Total-Rural-Urban, District, Gender gap

## INTRODUCTION

Human resource is the real wealth of a nation. The participation of this resource in labour force is a key indicator of socio economic development of a country. It is the work through which they earn their livelihood and become economically secure. Again a country's economic development critically depends upon the labour force participation of its females, as they constitute around half of its human resources. The economic productivity of the females is also a vital factor in their progression towards economic independence and is considered as an indicator of their overall status in society

Globally, women's participation in the labour force has remained relatively stable in the two decades from 1990 to 2010, at approximately 52 per cent (ILO, 2014). Labor force participation of women varies significantly across the countries and far more than in the case of men. The rate for women in South Asia was much lower
than the global average of 52 per cent, and it was much lower than the rate for women in East Asia, which was 66.4 per cent. In the Middle East, North Africa and South Asia, less than one-third of women of working age participate, while the proportion reaches around two-thirds in East Asia and sub-Saharan Africa. The FLFP rates during the period 2014 among BRICS countries was found to be - China (64 \%), Brazil (59 \%), Russia (57 \%), South Africa (45 \%) and India (27 \%). Again, the gender gaps in labour force participation persist at all ages except the early adult years in South Asia (UN, 2010). The gender disparity is highest in South Asian countries, notably Afghanistan, Pakistan and India as per ILO report 2014. A number of countries in South Asia display puzzling trends in the participation rates of women, with India being most notable for its falling rates in recent years. India's economic growth has rapidly increased over the past two decades; reaching an average of 8 per cent (growth has since slowed down considerably since 2011).

[^0]At the same time, fertility has been falling quite rapidly (Bhalla and Kaur, 2011), while educational attainment has improved considerably in recent decades. In this context, the fall in the female labour force participation rate, due to a decline in the number of women working in rural areas, emerged as a major surprise to academics and policy-makers.

According to Lewis (1954), the transfer of women's work from household to commercial employment is one of the most notable features of economic development. However, this is one aspect in which India's record has been radically bleak. A low female labour force participation rate is indeed the factor that keeps India's overall labour force participation rate low. As stated in the ILO's Global Employment Trends 2013 report, India ranks $11^{\text {th }}$ from the bottom in female labour force participation out of 131 countries (ILO, 2013). India is among those countries who have the lowest female labor force participation (FLFP) rates among emerging markets and developing countries. Female labour force participation rate of India was 33 per cent in 2012 which is well below the global average of around 50 per cent and East Asia average of around 63 per cent. Drawing more women into the labor force, along with other important structural reforms that could create more jobs, would be a source of future growth for India as it aims to reap the "demographic dividend" from its large and youthful labor force. There are twenty eight states and 9 union territories in India as per Census 2011 record. We can observe a variation among the states of our country in Female Labour Force Participation rates. As per the NSSO report based on $68^{\text {th }}$ round EmploymentUnemployment Survey, July 2011-June 2012, the FLFP rates varies from 5.7 to 45.5 among the states and union territories of India. Bihar has represented the lowest FLFP rate and Sikkim has shown the highest FLFP rate in India. North eastern region of India has shown better result in case of FLFP rate compared to other states of India except Assam.

The economic analysis of females participation in economic activity attracted considerable attention since the pioneering works of Mineer and Cain (1966). There are number of studies emphasizing the female labour force participation scenario at the national level of our country but there are very few studies, which evaluate the pattern of labour force participation of women in Assam. Among the low FLFPR representing states of India, Assam is the focus of the present study which falls under the North

Eastern Region of the country. It is worth mentioning that Assam is the state with lowest FLFP rate among the eight north eastern states. The North Easter Region (NER) of India comprise of eight states and is dominated by tribal population. Assam is the only state in the region having majority of the area plain and also having less percentage of tribal people compared to other seven states of the region. Assam is considered as the gateway of this isolated region from the main land of the country. There are, at present, twenty seven district in Assam as per 2011 census and its total population is recorded at $3,12,05,576$. The state is characterized by low rate of growth and pre-dominance of agriculture as the main source of livelihood.

## Concepts and definition:

Labour force : Persons, who were either 'working' (or employed) or 'seeking or available for work, (or unemployed), constitute the labour force. Thus the labour force is the sum of the number of persons employed and the number of persons unemployed. In other words we may state that the term 'labour force' includes the current economically active population comprising the employed and the unemployed.

## Labour Force Participation Rate (LFPR):

The labour force participation rate is calculated by expressing the number of persons in the labour force as a percentage of the working-age population. Thus, the measurement of the labour force participation rate requires the measurement of both employment and unemployment. Employment comprises all persons of working age who during a specified brief period, such as one year or one week or one day, were in the following categories: a) paid employment (whether at work or with a job but not at work); or b) self-employment (whether at work or with an enterprise but not at work). The unemployed comprise all persons of working age who were: a) without work during the reference period, i.e. were not in paid employment or self-employment but currently available for work, i.e. were available for paid employment or self-employment during the reference period or seeking work, i.e. had taken specific steps in a specified recent period to seek paid employment or selfemployment. The working- age population is the population above the legal working age, but for statistical purposes it comprises all persons above a specified minimum age threshold for which an inquiry on economic
activity is made. To favour international comparability, the working-age population is often defined as all persons aged 15 and older, but this may vary from country to country based on national laws and practices (some countries also apply an upper age limit).

The National Sample Survey Office under the Ministry of Statistics and Programme Implementation is the premier organization, which collects primary data throughout the India. Some of these surveys give information relating to employment, unemployment and labour force in the country. There are some other sources too which give this information relating to employment and unemployment but not it so detailed like NSSO. Since 1955, the National Sample Survey Office (NSSO) has conducted various surveys on employment and unemployment to assess the volume and structure of the labour force, employment and unemployment. Population census is one of the other sources of information on employment and unemployment. Population census in India is conducted in every ten years by the Office of the Registrar General and Census Commissioner of India. This survey collects information on economic activity of each and every people of India along with some other demographic and socio economic parameters.

The labour force participation rate is calculated by using the following formula:
Labour force participation rate $=\frac{\text { Labour force }}{\text { Working age population }} \times 100$

The age group 15 to 59 is considered as the working age population in this study.

## Objectives of the study:

The study aims to achieve the following objectives:
(i) Determine the age specific FLFPR of Assam
(ii) Determine the District wise FLFPR of Assam
(iii)Estimate the determinants of Prevailing FLFPR of Assam.

## Source of data:

The present study is based on secondary data collected from various publications of Registrar General and Census Commissioner of India on 2011 Census.

## METHODOLOGY

The universe of the study is the whole female labour force of Assam. The study is based on census survey or
complete enumeration method. Also the study is purely based on secondary data.

The study is focusing on the female labour force participation scenario of Assam. However the male work force has also been considered for a better vision of the gender gap. Relevant secondary data are collected from the Office of the Registrar General and Census Commissioner, New Delhi and Directorate of Census Operations, Assam.

Age specific and district wise female labour force participation rates are depicted with the help of tables and diagrams. Multiple Linear Regression model analyses have been taken into consideration to estimate the effects of selected independent variables on the female labour force participation rate in Assam. Three separate models have been computed for three different places of residence i.e., total, rural and urban. Female Literacy Rate, Male Literacy Rate, Male Work Participation Rate, Average Age at Marriage, Percentage of Female Schedule Tribe and Percentage of Female Schedule Caste are explanatory variables and Female Labour Force Participation Rate is the dependent variable in the regression model. Thus the regression model designed for this study is

$$
\mathbf{Y}=\beta_{0}+\beta_{1} \mathbf{X}_{1}+\beta_{2} \mathbf{X}_{2}+\beta_{3} \mathbf{X}_{3}+\beta_{4} \mathbf{X}_{4}+\beta_{5} \mathbf{X}_{5}+\beta_{6} \mathbf{X}_{6}+\varepsilon
$$

where Y denotes the Female labour Force Participation Rate which is the dependent variable in the model. $\beta_{0,} \beta_{1,} \beta_{2}, \beta_{3}, \beta_{4}$ and $\beta_{5}$ are regression coefficients and $X_{1} X_{2}, X_{3}, X_{4}, X_{5}$ and $X_{6}$ denotes Female Literacy Rate, Male Literacy Rate, Male Work Participation Rate, Average Age at Marriage, Percentage of Female Schedule Tribe and Percentage of Female Schedule Caste, respectively. $\varepsilon$ is the random error component reflecting the difference between the observed and fitted linear relationship.

## RESULTSAND DISCUSSION

## Labour Force Participation: Males and Females in Assam :

Statewide men are much more likely than females to participate in the labour force. This can be observed at national and global scenario (Worlds Women Report, 2015). In our state Female Labour Force Participation Rate is less than half of the male LFPR during the last two decades 2001 and 2011 as shown in the Table 1.

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Table 1 : Labour force participation rate of male and females in Assam

| LFPR | 2001 |  |  |  |  | 2011 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | Total | Rural | Urban | Total | Rural | Urban |
| Male | 81.80 | 81.18 | 85.15 | 82.93 | 82.72 | 84.03 |
| Female | 33.15 | 32.95 | 34.36 | 39.16 | 39.50 | 37.31 |
| Gender gap | 48.65 | 48.23 | 50.79 | 43.77 | 43.22 | 46.72 |

It has been observed that the female LFPR is significantly less than the Male LFPR during both the decades irrespective of their place of residence i.e., rural and urban. Even though rural and urban areas of our state possess different kind of employability opportunities, the gap between the male and the female LFPR is almost similar in both the areas.

The age group for calculating LFPR is considered as 15-59 and accordingly it has been presented in the Table 2. The Table 2 will show a comparative picture of LFPR in Assam by considering different age group.

| Table 2 :Labour force participation rate of male and <br> females for different age groups in Assam |  |  |
| :--- | :---: | :---: |
| Age Group | MLFPR | FLFPR |
| $0^{+}$ | 55.49 | 25.52 |
| $15^{+}$ | 61.83 | 28.45 |
| $15-59$ | 82.93 | 39.16 |

## Age Specific Female Labour Force Participation in Assam:

Here, in our research work, we are considering the age group 15-59 as the working age group of the females. At all the ages from 15 to 59 female LFPR is found less than the male LFPR in the state. While observing the age specific labour force participation rate for both male and females, it has been found that the age group 15-19 is showing the narrowest gender gap among all the age groups followed by the age group 20-24 which is shown in the Table 3, 4 and 5.

| Table 3: Age specific labour force participation rate (Total) |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| Age | LFPR (2001) |  | LFPR(2011) |  |
| group | Male | Female | Male | Female |
| $15-19$ | 48.25 | 29.48 | 50.80 | 33.05 |
| $20-24$ | 76.76 | 38.63 | 79.18 | 44.81 |
| $25-29$ | 87.65 | 37.90 | 88.73 | 44.89 |
| $30-34$ | 92.05 | 35.08 | 91.78 | 42.76 |
| $35-39$ | 93.97 | 34.51 | 93.25 | 41.48 |
| $40-49$ | 93.62 | 30.37 | 93.11 | 36.61 |
| $50-59$ | 89.30 | 21.79 | 89.95 | 28.35 |


| Table 4 : Age specific labour force participation rate (Rural) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Age group | LFPR (2001) |  | LFPR(2011) |  |
|  | Male | Female | Male | Female |
| 15-19 | 48.41 | 29.11 | 51.59 | 33.21 |
| 20-24 | 76.38 | 37.83 | 79.60 | 44.50 |
| 25-29 | 87.11 | 37.28 | 88.58 | 44.68 |
| 30-34 | 91.52 | 35.02 | 91.60 | 43.20 |
| 35-39 | 93.52 | 34.64 | 93.11 | 42.21 |
| 40-49 | 93.11 | 30.79 | 92.92 | 37.64 |
| 50-59 | 88.74 | 22.21 | 89.60 | 29.16 |


| Table 5 : Age specific labour force participation rate (Urban) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Age | LFPR (2001) |  | LFPR(2011) |  |
| group | Male | Female | Male | Female |
| 15-19 | 47.18 | 31.92 | 45.54 | 32.06 |
| $20-24$ | 78.79 | 43.54 | 76.81 | 46.56 |
| 25-29 | 90.55 | 41.53 | 89.62 | 46.05 |
| $30-34$ | 94.79 | $35.46$ | $92.69$ | 40.59 |
| 35-39 | 96.31 | 33.79 | 93.90 | 37.96 |
| 40-49 | 96.17 | 27.92 | 94.01 | 31.79 |
| 50-59 | 92.09 | 19.12 | 91.46 | 24.48 |

## District wise Female Labour Force Participation Rate in Assam:

Like other states of India the distribution of female labour force participation rate among the districts of Assam is not uniform. The Table 6 depicts the female labour force participation rate of twenty seven districts of Assam. When we consider a district as a whole the highest FLFP rate is observed in Jorhat district (50.99\%) followed by Dibrugarh (48.94\%) and Sivsagar (48.45\%). The lowest FLFP rate is observed in Nagaon district (30.49\%) followed by Bongaigaon district (31.96\%) and Morigaon district( $32.79 \%$ ). It has been observed that Jorhat ranks first in FLFPR with $52.67 \%$ followed by Dibrugarh (52.07\%) and Tinsukia (49.98\%) while comparing the FLFPR in rural areas of the districts of Assam. The lowest of the same has been recorded in Nagaon district with FLFP rate $14.36 \%$ followed by

Bongaigaon district (32.37\%) and Morigaon district (32.76\%).

| Table 6 : Female labour force participation rate (Total, Rural, Urban) |  |  |  |
| :---: | :---: | :---: | :---: |
| Districts | Total | Rural | Urban |
| Kokrajhar | 33.25 | 32.96 | 37.13 |
| Dhubri | 35.36 | 35.42 | 34.93 |
| Goalpara | 35.36 | 35.12 | 36.78 |
| Barpeta | 34.00 | 33.92 | 34.64 |
| Morigaon | 32.79 | 32.76 | 33.17 |
| Nagaon | 30.49 | 30.11 | 32.56 |
| Sonitpur | 40.91 | 41.65 | 34.47 |
| Lakhimpur | 38.18 | 38.17 | 38.31 |
| Dhemaji | 45.78 | 46.81 | 33.44 |
| Tinsukia | 45.36 | 49.98 | 28.22 |
| Dibrugarh | 48.94 | 52.07 | 36.10 |
| Sivasagar | 48.45 | 49.43 | 39.54 |
| Jorhat | 50.99 | 52.67 | 44.69 |
| Golaghat | 44.31 | 45.50 | 33.41 |
| Karbi Anglong | 37.09 | 37.21 | 36.29 |
| Dima Hasao | 45.30 | 46.29 | 43.13 |
| Cachar | 40.36 | 40.48 | 39.88 |
| Karimganj | 34.64 | 34.00 | 39.98 |
| Hailakandi | 37.29 | 36.44 | 46.17 |
| Bongaigaon | 31.96 | 32.37 | 30.03 |
| Chirang | 37.01 | 37.68 | 29.35 |
| Kamrup | 41.65 | 41.82 | 40.27 |
| Kamrup Metropolitan | 40.60 | 41.24 | 40.47 |
| Nalbari | 40.96 | 40.56 | 44.00 |
| Baksa | 39.76 | 39.88 | 30.85 |
| Darrang | 33.39 | 33.24 | 35.38 |
| Udalguri | 39.63 | 39.92 | 33.96 |

Source: Autor's own calculation based on 2011census data on work

On the other hand the highest urban FLFP rate is observed in Hailakandi district with $46.17 \%$ followed by Jorhat (44.69\%) and Nalbari (44\%). The lowest of the same is recorded in Tinsukia with $28.22 \%$ followed by Chirang (29.35\%) and Bongaigaon (30.03\%). Even though the variation in FLFPR among the twenty seven districts of Assam is not very high, the FLFPR in every district is less than the Male LFPR. The gender gap in LFPR in all the districts of Assam is shown with the help of the bar diagram (Fig. 1).

The highest gender gap in LFPR is found in Nagaon district (53.45\%) followed by Bongaigaon (52.14\%). Also the lowest gender gap has been recorded in Jorhat district followed by Dibrugarh (31.80\%). However, compared


Fig. 1 : District wise Male and female LFPR (Total)
to the FLFPR, MLFPR has been found almost uniform in all the districts.

The male female LFPR of all the districts of Assam in rural and urban areas have been shown in the Fig. 2 and 3.


Fig. 2: District wise Male and female LFPR (Rural)

The highest gender gap in LFPR in rural and urban areas of Assam is also found in Nagaon district (53.65\%) and Bongaigaon (54.85\%), respectively while the lowest has been recorded in dibrugarh district ( $28.31 \%$ ) and Dima Haso (38.27\%), both followed by Jorhat.

## Determinants of Female Labour Force Participation in Assam:

Like the country, Assam is also characterized by a low rate of female labour force participation throughout the state. Females participation in the labour force may be driven by necessity on the one hand or be the result of increasing educational attainment, changing social norms and available employment opportunity on the other hand


Fig. 3: District wise Male and female LFPR (Urban)
(Ruchika, 2011). Thus the prevailing pattern of FLFPR in the state can be attributed to various economic and socio cultural factors (Sorsa et al., 2015). Among them education can be considered as one of the major factors in determining the female labour force in a society. Education is always the backbone of a society particularly in developing nations. Also, Educational attainment is an important factor in determining the employability of a worker and is likely to affect women's labour force participation decisions in many ways (Kapsos et al., 2014). As the females become educated, their capabilities in various respect also improve which enable them to engage in different work outside the home. In an study by Tansel (2002), it was reported that educational attainment has an important effect on an individual's decision to participate in the labour market. The study has concluded that female labour force participation is positively and significantly affected by female level of education and economic growth rate In our research also while analyzing the prevailing pattern of FLFPR among the districts of Assam, we are considering educational level of females as one of the major explanatory variable of the females labour outcome. The educational level of the females of each district is measured in terms of female literacy Rate in our research work. However, the relationship between educational attainment and female labour force participation is by no means clear-cut. A general observation is that in developing countries the relationship between education and female labour force participation is often U-shaped (Klasen and Pieters, 2012). Das (2006) and Olsen and Mehta (2006) found that the labour participation among the uneducated females was more than the highly educated ones. On the other hand Bhalla and Kaur (2011); Faridi et al.
(2009); Hafeez and Ahmad (2002) have recorded positive relationship in their studies. Some earlier studies even find a negative relationship between the two (Das and Desai, 2003; Dasgupta and Goldar, 2005; Kingdon and Unni, 1997; Kottis, 1990). In addition to female education, male education is also play a role for improved participation of females in the labour force (Bhalla and Kaur, 2011). In our society, the decision of a women specially the married women to participate in the labour force not only depend on her but also on the head of the household. Generally, the head of a household is the senior most male member of the family. If both male and females become educated then it can be expected that the social constraints will weaken imposed upon women who in turn enable women to participate in the labour force. In this research work, both male and female literacy rate have been considered as explanatory variable to see how the present female labour force participation rate in Assam are influenced by them.

Along with literacy rate, another factor which can highly influence the rate of females participation in the labour force is income of the household. Generally it has been observed that cultural and societal norms have a significant influence on female's decision to participate in the labour force and their choice of work. It has been widely recognized in may studies (Desai and Jain, 1994; Panda, 1999; Das and Desai, 2003 and Goksel, 2012) that these norms deject women to take up paid employment and that they detain women to the role of caregivers In India, social norms tend to attribute the primary responsibility in securing household income through employment to men, while women are expected to devote their time to domestic care (Das, 2006). Women in poorer households may be required to complement their household's income through engages themselves in some paid work in order to meet minimum subsistence needs (Dasgupta and Golder, 2005). This implies that females are driven to the labour force by necessity. In happens in our society that females from the higher income group households have less tendency to be a part of the labour force (Klasen and Pieters, 2012). In fact the increased unearned income of females (for example by spouse) will only exercise an income effect on their labour supply decision resulting in a potential extraction from the labour force (Mammen and Paxson, 2000) In Census we do not get any kind of income data for the households. But the male work participation rate can be calculated from the available census data. This Male work participation
rate can give an idea about the spousal status in the labour force and consequently an idea about the economic status of the household. In our research work we are considering Male Work Participation Rate (MWPR) as a variable influencing the female labour force participation in the districts.

Marriage is always considered as an explanatory factor in describing the pattern of female labour force participation in a region. In fact, a negative impact of marriage has been found in India in some earlier studies (Sorsa et al., 2015) After marriage females have to take the resposibilty of their children along with other household duties. The presence of young children in a household has a negative impact on participation in any economic activity. As a result, the relationship between fertility and female labour force participation has been found negative in general (Ejaz, 2007; Klasen and Lamanna, 2009). The fertility level of females can be controlled by female education which in turn help increase more number of females to show their interest in economic activity (Mammen and Paxson, 2000). Both these fertility level of females and the females education again highly depend on one factor that is 'age at marriage'. Generally uneducated females with earlier age at marriage have the more number of children in their child bearing period. In this research work we are making an effort to estimate how the pattern of female labour force participation rate in Assam has been influenced by the age at marriage of the ever married females in different districts.

In India female's participation in the labour force is also influenced by the social class. If a women belong to schedule caste or schedule tribe, the possibility that they will participate in the labour force increases (Mammen and Paxson, 2000). It was mentioned by Kapsos et al., 2014 in their study that the probability of participating in the labour force by schedule caste or schedule tribe females were also more in case of rural areas where cultivation was the main source of income of the households. On the other hand among the higher social group families, women staying at home without involving in any economic activity raise the status of the family (Eswaran et al., 2013). Assam is a state where we find people from all social classes like ST, SC, OBC, General etc. in all the districts. To see the labour force participation effect of females belong to ST and SC category towards the overall labour force participation of the females in Assam, we are considering proportion of female ST and SC as explanatory variable in this research work.

## Estimation of the significance of explanatory variables on FLFP in Assam through linear regression model:

We have used the following abbreviations for denoting the dependent and different independent variables in the model. These are as shown below:

FLFPR : Female Labour force Participation Rate
FLTR : Female Literacy Rate
MLTR : Male Literacy Rate
MWPR: Male Work Participation Rate
AAM : Average Age at Marriage
PSTF : Percentage of Schedule Tribe Females (to the total female population)
PSCF : Percentage of Schedule Caste Females (to the total female population)
The regression model is estimated first for total areas (rural + urban) and then also estimated separately for both rural and urban areas in order to see the impact of regressors on FLFP rate in Assam. The regression results as shown in the table 4 indicate that the variables included in the model I are useful in explaining the observed variation in FLFP rate in Assam as the regression has been found significant. The model has shown a good explanatory power with adjusted $\mathrm{R}^{2}$ value 0.795 . This implies that almost $80 \%$ of the observed variation in FLFP rate has been explained by the explanatory variables included in the model and it is statistically significant as the p-value for the model is very small which less than 0.01 .

While testing the significance of the regression coefficients, it has been found that two regression coefficients of are statistically significant as shown in Table 7. The average age at marriage has significant positive regression coefficient indicating females with higher age at marriage are expected to contribute more to the labour force participation after controlling the other variables in the model. On the other hand the explanatory variable PSCF has shown negative significant regression coefficient which implies that with an increase in the number of female PSCF population to the total population there can be a decrease in the participation of the females in the labour force after controlling the other variables in the model.

Again the adjusted $\mathrm{R}^{2}$ value for the model II have been obtained as 0.760 which implies that almost $76 \%$ of the variation in the FLFP rate in Assam considering only the rural areas of each district has been explained by the independent variables included in the model.

| Variables | Model I(Total) |  | Model II(Rural) |  | Model III(Urban) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Coefficients | P-value | Coefficients | P -value | Coefficients | P -value |
| Constants | -94.482 | 0.000 | -108.590 | 0.000 | 40.561 | 0.372 |
| FLTR | -0.448 | 0.088 | -0.384 | 0.278 | 1.203 | 0.102 |
| MLTR | 0.527 | 0.100 | 0.574 | 0.148 | -1.091 | 0.291 |
| AAM | 4.771 | $0.002^{*}$ | 0.981 | $0.013^{*}$ | 1.211 | 0.539 |
| MWPR | 0.590 | 0.064 | 4.158 | $0.014^{*}$ | -0.586 | 0.147 |
| PSTF | 0.027 | 0.405 | -0.040 | 0.277 | 0.045 | 0.652 |
| PSCF | -0.546 | $0.008^{*}$ | 0.635 | $0.005^{*}$ | 0.244 | 0.339 |
| F-Statistics | 17.811* |  | $14.712^{*}$ |  | 2.577 |  |
| Adjusted R-Square | 0.842 |  | 0.760 |  | 0.267 |  |

Here also the regression results indicate that the independent variables included in the model are useful in explaining the observed variation in FLFP rate of rural Assam. The regression has been found statistically significant at $1 \%$ level of significance as shown in the following Table 7.

Among the independent variables in model II, MWPR is showing positive significant regression coefficient considering other variables constant as shown in the above table. This can be interpreted as with an increase in MWPR in the rural areas of Assam an increase in FLFPR can be expected. Average age at Marriage has also shown significant positive regression coefficient indicating females with higher age at marriage are expected to contribute more to the labour force participation after controlling the other variables in the model. On the other hand, PSCF has shown significant negative regression coefficient.

The same six explanatory variables are found not useful in explaining the observed variation in FLFP rate while considering all the urban areas of the state. As shown in the above Table 7 the adjusted $\mathrm{R}^{2}$ value for the model III where we are considering urban areas of each district, is very small compared to the earlier two adjusted $\mathrm{R}^{2}$ values. The independent variables in the model III explain only $0.267 \%$ of the total variation in FLFP rate in urban Assam.

From the above results it can be clearly interpreted that the independent variables which are included in the models for estimating their impact on FLFP rate are not suitable to explain the variation in urban areas of Assam. They are useful for the rural Assam and the Assam as a whole by combing both rural and urban areas of the State.

All the six regression coefficients are found in significant in case of urban Assam.

## Conclusion:

Female labour force participation rate (LFPR) is less than the Male Labour force participation rate during both the decades 2001 and 2011 in Assam irrespective of their place of residence i.e., rural and urban. Even though rural and urban areas of our state possess different kind of employability opportunities, the gap between the male and the female labour force participation rate is almost similar in both the areas. At all the ages from 15 to 59 female LFPR is found less than the male LFPR in the state. The age group 15-19 is showing the narrowest gender gap among all the age groups followed by the age group 20-24 in the state. Among the districts of Assam the highest FLFP rate is observed in Jorhat district ( $50.99 \%$ ) followed by Dibrugarh ( $48.94 \%$ ) and Sivsagar ( $48.45 \%$ ) and the lowest has been found in Nagaon district ( $30.49 \%$ ) followed by Bongaigaon district ( $31.96 \%$ ) and Morigaon district( $32.79 \%$ ). The district Jorhat can be considered as a district where the overall best female labour force participation has been reflected throughout the state. Among the explanatory variables, Average age at Marriage, Male work Participation Rate and Percentage of Scheduled Caste Population have shown significant positive effect on Female labour force participation of Assam especially in Rural Assam. The same explanatory variables are not able to explain well the variation in FLFP rate in urban Assam.

It may be suggested that the policy makers should take some steps to bring more and more females to join in the labour force because without them a state cannot prosper economically. Also, State Government should initiate awareness generation to adopt positive attitude among females to participate in economic activities.

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