FEMALE WORKERS IN THE NON-FARM SECTOR IN INDIA: EVIDENCE FROM NSSO AND PLFS REPORTS

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Abstract: *This study explored the role of female workers in the non-farm sector in India. Hence, the non-farm sector engages in a variety of economic activities and contributes significantly to the creation of employment. The study is based on secondary data from the Periodic Labour Force Survey (PLFS) and the National Sample Survey Office (NSSO). The PLFS reports for 2019-20, 2020-21, and 2021-2022 were utilised to analyse variables such as workforce participation rate, labour force participation rate, and the employment status of females. Specifically, age, gender, and sector (rural and urban) were considered in the analysis. Descriptive statistics and cross-tabulation have been used as the primary statistical methods to analyse the following variables in this study. The study's findings show the gap between males and females has widened in the labour force participation rate in the labour market. As a result, females are leaving the workforce at a faster rate. Thus, it must provide new job opportunities for various jobs and advance them from a policy viewpoint as well.*

Keywords: *Non-farm sectors, female workers, PLFS, descriptive statistics, India.*
JEL Classification: *J0, J07.*

1. Introduction

The Rural Non-Farm Sector (RNFS) includes a wide range of economic activities in rural areas, and covers all rural productive substances along with farm holdings. The non-farm sector is heterogeneous and includes all economic activities i.e., mining and quarrying together with other secondary and tertiary sector activities apart from agriculture, livestock, hunting, and fishing (Lanjouw and Lanjouw, 2001). Non-farm sector plays a significant role in the inclusive development of rural areas of India, by rising the employment skills of rural labour, that might be decrease income disparities. By reducing the vulnerability of rural households due to various reasons, the existence of proper functioning of rural non-farm sector can operate as a complementing force in balancing variations in agricultural income. However, the degree of agricultural success in the affected areas determines how the development of the non-farm sector functions. Low incomes put farmer households, in particular, in danger of failing, and economically disadvantaged places may not be able to offer sufficient employment possibilities in agriculture. Non-farm activities consequently emerge as a coping mechanism for the scarcity of the push forces related to the farm sector (Rajeev & Bhattacharjee, 2018). Alternatively, agricultural surplus earnings in agriculturally developed districts are also invested in non-farm activities (pull forces) to create a diverse income stream.

For the growth of economy, the non-farm sector is very essential. Global data indicates that, in Africa, non-farm revenue accounts for approximately 35 per cent of rural household income, whereas in Asia and Latin America, it accounts for roughly 50 percent (Hagblade & Hazell, 2010). Compared to emerging countries, where it accounts for 20–30 percent of total household income, the RNFS contributes 25–35 percent of rural households' total income (Coppard, 2011). In keeping with the 2011 census, 45 percent of India's total

workforce was employed within the non-farm sector. A phase of structural employment transformation was also experienced by the Indian economy, during which jobs in agriculture and related sectors fell by roughly 5 million annually, while the number and share of workers in non-farm sectors increased by roughly 7.5 million annually (Himanshu, 2011; Mehrotra et al., 2014; Kannan and Raveendran, 2019). Both the decline in the proportion of poor people and the decline in the labour force working in agriculture were new trends in India.

Globally, Men are more probably than women to participate in the labour market. Despite progress, disparity between genders in labour force participation is one of the most pressing challenges in today's world of work. One of the, very common phenomena observed by several researchers is the U-shape association between national income and women's labour force participation. These phenomena illustrate, the disparity between genders in the labour market for developed, low-income countries or developing countries. As a developing country, India has experienced, a major issue of the gender gap in labour markets past three decades, especially low female labour force participation as well declined position found mid of 2000 (Mehrotra & Parida, 2017; Mehrotra & Sinha, 2017). It can be shown from the latest Periodic Labor Force Survey (PLFS, 2021-22), where labour force participation rate is 57.3 and 24.8 percent for males and females, respectively in India with all ages. It has one of the lowest female labour force participation rates (LFPR) among developing countries, standing at 24.53 per cent in 2018-19. It is well below the global average and has been widening. Among the all-Indian state, Bihar has extremely low female LFPR, which is 6.7 percent as compared to male is 46.5 percent with all ages (PLFS, 2021-22).

Bihar is amongst the less developed states in India with approximately 87 percent of the population living in rural areas (Census, 2011). However, there has been structural economic change within the state which will be noticed where the pattern of labour employment is shifting from farm to non-farm sector. It is estimated that the income from non-agricultural sectors is more than twice that of activities concentrated on agriculture. Since around 70 percent of Indians live in rural areas, the agenda for rural development is crucial to the country's economy. Therefore, a similar agenda is necessarily relevant for Bihar too which needs more attention from the policymakers and researchers to look at. Bihar faces a larger challenge in developing its agricultural sector due to the state's extremely high population density, which places a significant deal of burden on the state's limited land resources. Various studies on the role of the non-farm sector are analysed globally but only a few studies specialising in the contribution of female workers in the non-farm sector specifically a state like Bihar need to be focused (Vasco and Tamayo, 2017; Mehrotra and Parida, 2017). The purpose of this paper is to further the discussion on women's empowerment by examining the non-farm, non-agriculture aspects of the rural economy, their increasing significance in rural residents' livelihood strategies, the new opportunities and changes they bring to the area, and the ways and places in which nonfarm employment can significantly contribute to women's empowerment. While doing this, we examine how crucial development initiatives are to the effective integration of gender issues.

2. Review of Literature

Gender, inequality, and non-farm income were discussed by Canagarajaha et al. (2001). This study examines how inequality in rural Ghana and Uganda is affected by non-farm employment. At every income level, non-farm income is crucial for both men and women. The authors discovered that the primary source of income for the expanding inequality was self-employment income. The group looks at poverty decompositions to investigate variations in growth vs redistribution. The most obvious gender difference

between the two nations is that, in households led by women, non-farm activities are more likely to have an impact that contributes to inequality. According to Kundu et al. (2003), there may not always be a positive correlation between a high percentage of non-firm work and sound economic development in rural areas due to association with the incidence of rural non-farm employment, the levels and types of employment, unemployment, and poverty at the state level. While few studies have been done specifically looking at the interaction between rural and urban areas, some have looked at how urban centres affect the agrarian economy. There has been a growing argument since the early 1990s that liberalisation policies have aided in the expansion of commercial and other service-related enterprises in rural India. Within a range of 0 to 15 kilometres, there is a sharp decline in per capita income. Farid et al. (2009) have highlighted that in rural Bangladesh, women are predominantly underutilised and often go unrecognized. Official labour force statistics have not fully acknowledged the crucial contributions that women make to both agricultural and non-agricultural production processes. Approximately 60–70 percent of women from households who are landless or almost landless are employed as wage labourers in agriculture. Larger farm women don't work in the fields. They are being forced to abandon their traditional roles as housewives due to financial constraints. Srivastava and Srivastava (2010) study on rural women's employment reveals that despite increased employment rates, rural women in India predominantly engage in self-employment or casual labour within agriculture, facing discrimination and job-typing that keeps them in low-paying roles. The study emphasizes that higher work participation alone doesn't lead to better outcomes; instead, improved prospects are associated with higher education and asset ownership. Education, while not always influencing initial workforce entry, becomes the most critical factor for enhancing the quality of non-agricultural work for women already employed. Additionally, women's autonomy, measured by factors like land control and mobility, empowers them to explore non-agricultural jobs. This research highlights the enduring challenges faced by rural women, emphasizing the need for comprehensive policies addressing education, autonomy, and gender bias to improve their economic well-being in India. According to Himanshu et al. (2011), throughout the last 30 years, the RNFS in rural India has developed continuously, with a mild increase from the late 1990s to the middle of the 2000s and a decline after 2004–05. The decrease in rural poverty has only lately been closely associated with the village economy's diversification. Vasco and Tamayo (2017) pointed out that although females are more probably than males to work for themselves in Ecuador's non-farm sector, their pay is still far lower than that of men in that same field. India's economy has grown rapidly during the last several decades, according to Kumar et al. (2020). The employment diversification of eastern India towards the non-farm sector between 1993–1994 and 2011–2012 shows a notable variation by income group and farm size. In rural eastern India, people from large households are more likely to pursue non-farm and self-employed work than standard pay or salary jobs. Smaller family members are more likely to choose casual work as their main source of income and to choose employment in a non-farm regular salary- or wage-earning position. In eastern India, factors such as caste, age, gender, and levels of technical and general education have a big influence on non-farm diversification. In two years, household expenditure rises by 14 percent, and in six years, it increases by 50%, if one more member of the home works in the non-farm sector. As per Pattayat et al. (2022), there was a significant decrease in poverty in India between 2004-2005 and 2011-2012, followed by a drop in the overall population of poor people. Negative and statistically significant effects are caused by the non-farm sector. Thus, a 1 percent rise in the NSDP growth of the non-farm sector as a whole is expected to lower the poverty rate in rural India by about 6.2 percentage

points. Agriculture mechanisation has increased dramatically between 2004–2005, leading to the loss of jobs in agriculture for landless and marginalised individuals. The comparatively sluggish increase in employment in the non-farm sector over the years after 2011–2012 ought to raise serious concerns.

3. Objective

The study examines the female labour force participation in non-farm sectors in India. Here, non-farm sectors consider only those sectors which have come under secondary and tertiary Sectors. While both these sectors encompass numerous non-agricultural activities, the study focuses on broader categories of non-agricultural activities, including manufacturing, construction, trade/hotel, and transport/storage.

4. Data and Methodology

This study is based on secondary data, specifically drawing from the PLFS and NSS sources, to achieve its objectives related to 'female workers in the non-farm sector in India'. The analysis incorporates the latest PLFS data from the years 2019-20, 2020-21, and 2021-22. Additionally, to facilitate comparisons, NSSO data is included in the study. Methodologically, the research employs simple statistical tools, such as cross-tabulation and descriptive statistics. Descriptive statistics are utilised to analyse variables including workforce, participation rate, and employment status of females, with a particular focus on sectors (rural and urban) and gender perspectives. The primary presentation methods for these statistics include pie charts, graphs, and tables.

5. Results and Discussion

Table No. 1 Gender-Wise LFPR, and WFPR for India (in percentage)

LFPR

Year	**Male**	**Female**	**Total**
2017-18	55.5	17.5	36.9
2018-19	55.6	18.6	37.5
2019-20	56.8	22.8	40.1

WFPR

Year	**Male**	**Female**	**Total**
2017-18	52.1	16.5	34.7
2018-19	52.3	17.6	35.3
2019-20	53.9	21.8	38.2

Source: Various Rounds of PLFS Reports, & NSSO rounds 61st (2004-05) and 68th (2011-12).

The LFPR for both males and females has decreased overall (Table 1), although the rate at which females are leaving the labour force is substantially higher. Male participation has remained more or less stable with slight fluctuation in 2017-18. Between 2004-05 to 2017-18, there was more than a 10 percent fall in female LFPR. According to the PLFS (2018-19), females entering the labour market dipped to only 2.8 percent in Bihar, while 18.6 percent of 43 females are participating in the labour market at the all-India level. There is a

claim that a low female LFPR can hinder economic expansion by lowering the rates at which it could increase (Kapsos, Silberman & Bourmpoula, 2014). Even though it increased to 6.4 percent under the latest PLFS report 2019-20, that also includes the period when the economy was hit by the pandemic that led to reverse migration that might have affected their participation. As the literature suggests, one element that influences women's engagement in the labour force is family income. (Sarkar et al., 2017). Overall, Bihar's female labour market participation rate is substantially lower than India's overall female labour market participation rate. Similarly, females in Bihar participate in the labour force far less than males.

Numerous studies have investigated the causes of India's disadvantaged female LFPR. Female LFPR is low and dropping due to a combination of factors including income effect and education (Kapsos et al., 2014; Mehrotra et al., 2012; Rangarajan, Kaul, & Seema, 2011). Additionally, societal factors that affect female LFPR negatively include marriage and home responsibilities (Sanghi, Srija, & Vijay, 2015). Furthermore, there have been suggestions regarding measurement problems in capturing female work in NSS surveys (Kapsos et al., 2014). Similar questions have been raised regarding the results by Rodgers (2012), who has presented a study that demonstrates a significant increase in female LFPR.

Table No. 2 Percentage of Labour Force Participation Rate (PLFPR) and Workforce to their usual place of work status (ps+ss) with all ages, All India.

Employment status	**PLFS Year**	**Usual place of work**			
		Rural		Urban	
		Male	Female	Male	Female
Labour force participation rate	2019-20	53.3	24.7	57.8	18.5
	2020-21	57.1	27.7	58.4	18.6
	2021-22	56.9	27.2	58.3	18.8
Workforce	2019-20	53.8	24.1	54.1	16.8
	2020-21	54.9	27.1	54.9	17.0
	2021-22	54.7	26.6	55.0	17.3

Sources: LFPR & workforce percentage from consecutive reports of PLFS years (2019-20, 2020-21, 2021-22)
Note: usual principal status and subsidiary status are considered together as usual status (ps+ss).

In Table 2, there are two employment statuses, namely labour force participation rate (LFPR) and workforce with all ages, in all India levels. It shows that previous three consecutive reports of PLFS, the FLFPR and the workforce both have less than 50 percent around in both rural and urban sectors. Particularly, in the rural regions the male and female, the LFPR and workforce both have declined. Where, LFPR is from 57.1 percent to 56.9 percent for males and from 27.7 percent to 27.2 percent for females in LFPR, from year 2020-21 to 2021-22. Similarly, declines were also found in the workforce in rural regions from 54.9 percent to 54.7 percent for males and 27.1 percent to 26.6 percent for females the same year in PLFS.

But from the gender and region perspectives, it observed that in both work conditions LFPR and workforce, females' s work conditions significantly declined (0.5 percent) as compared to males (0.2 percent) from PLFS year 2020-21 to 2021-22.

Labour force participation rates by gender across farm and non-firm sectors

As per the objectives of the study, the factors affecting female participation in the non-farm sector, this section tries to find out the current share of females in different sectors. Here, broadly categorised into two sectors as per the study objective. Apart from the overall labour force participation in various sectors for females, the non-farm is such type of sector where females labour force share is much lower than males. We can also justify this by the given table 3.

Table No. 3 Percentage of male and female workers between farm and non-farm activities, all India

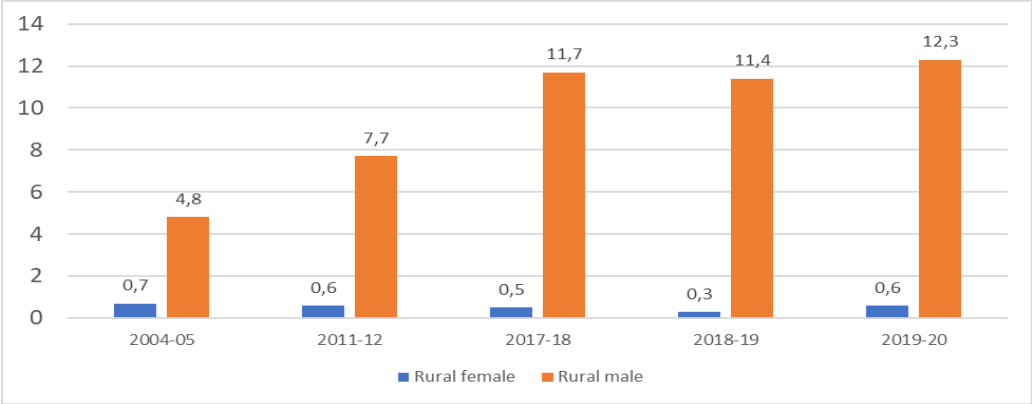
Sector	**Rural + Urban**					
	PLFS (2021-22)		**PLFS (2020-21)**		**PLFS (2019-20)**	
	M	**F**	**M**	**F**	**M**	**F**
Farm	38.1	62.9	39.8	62.2	40	59.9
Non-farm	49.2	25.7	49.2	23.4	50.7	23.5

Source: Last three consecutive reports of PLFS years, 2019-20, 2020-21 and 2021-22

In Table 3, the sectors are categorized into two parts farm and non-farm based on previous studies and NSSO (Lanjouw & Lanjouw, 2000; NSS, 2007-08). Lanjuow states that agriculture activities include the farm sector, except its allied activities and non-farm activities are considered non-agricultural activities. So, here farms included agriculture only and non-farms included non-agriculture activities (mining and quarrying, manufacturing, water, electricity, constructions, trade, transport storage & communications, hotel & restaurant, and others) as per broad industry division 2008, in the PLFS report 2021-22. But, here only considers six non-farm activities except for other services. The percentage distribution of workers sums up all six activities and is presented as a form of the non-farm sector in the given table. Hence, we observed that female work percentage participation is less than males with 23.5 percent, 25.7 percent and 23.4 percent in respective PLFS years 2019-20, 2020-21 and 2021-22.

So, regarding some previous analysis base study with the help of NSSO and PLFS data sources too. We find that the female worker's participation in the non-agriculture sectors is significantly low. The scenario of this situation is shown in the given figure.

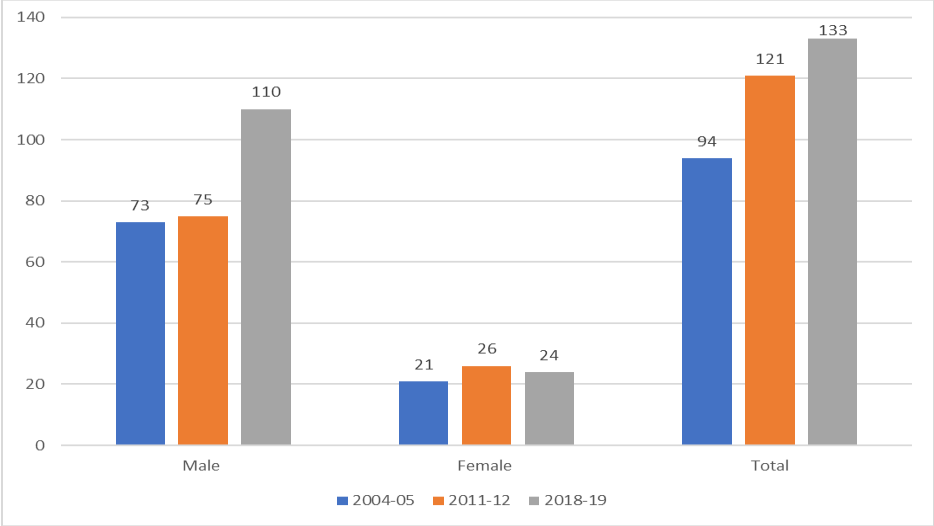
Figure No. 1 Male and Female Participation in RNFS in Bihar (in Million)



Source: Survey Report on Employment and Unemployment conducted in the 61st (2004-05) and the 68th (2011-12) round of NSS and the PLFS Reports (Various Rounds).
Note: RNFS = Rural Non-Farm Sector

Focusing on the rural employment structure in Bihar, it was discovered that while rural livelihood diversification from farm to non-farm rose, more rural females remained engaged in farm work, compared to rural males. Figure 1 shows the gender representation in the RNFS in Bihar in millions, which shows that there exists a sharp gap between male and female participation in the rural non-farm sector in Bihar. During 2004-05 the male participation in RNFS was 4.8 (in millions) and female was 0.7 (in millions) which shows a gap in their participation but this gap not only persisted that year only increased which we can see in the above figure. In 2019-20 the male participation was 12.3 (in millions) and the female participation was 0.6 (in millions). It shows that rural male dominates the RNFS, and rural female workers are mostly in farm sectors with limited opportunities for non-farm employment.

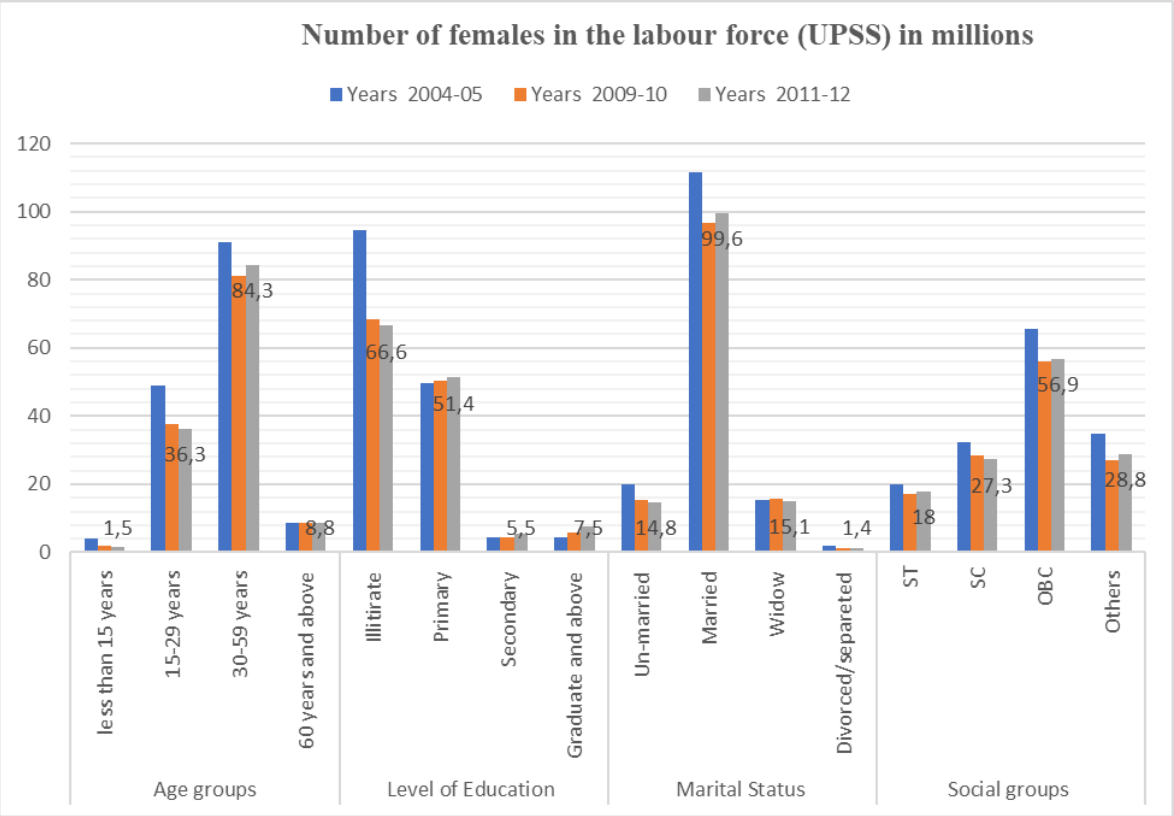
Fig No. 2 Workers in Non-Agriculture (in millions)



Source: Niti Aayog Discussion paper, Nov. 2017, NSSO, EUS, PLFS 2018-19, Calculated by C.S.C. Shekhar.

Figure 2 illustrates that over the specified period, In the non-agricultural sector, the whole labour force, comprising both male and female workers, has increased. But in the case of gender perspective, a huge gap in the years 2018-2019. Where the male is 110 million, while the female is the only worker in non-agriculture. A majority of studies (Chatterjee et al 2018; Goldin 1995; Olsen and Mehta 2006) suggest that the Female Labour Force Participation Rate (FLFPR) initially (that is, at a lower age) declines, then increases with higher educational attainments, leading to a U or J-shaped relationship between the FLFPR and literacy levels. Evidently, in a developing country, as the economy develops, household incomes increase and the FLFPR declines (income effect). As access to education improves, female enrollment in educational institutions increases, causing the FLFPR to fall (education effect). Further, when circumstances (both household and national economy) improve and female family members have the required education, their participation in the labour market also increases (substitution effect).

Figure No. 3 Socio-economic status of female workers in India, years (2004-05, 2009-10 and 2011-12)



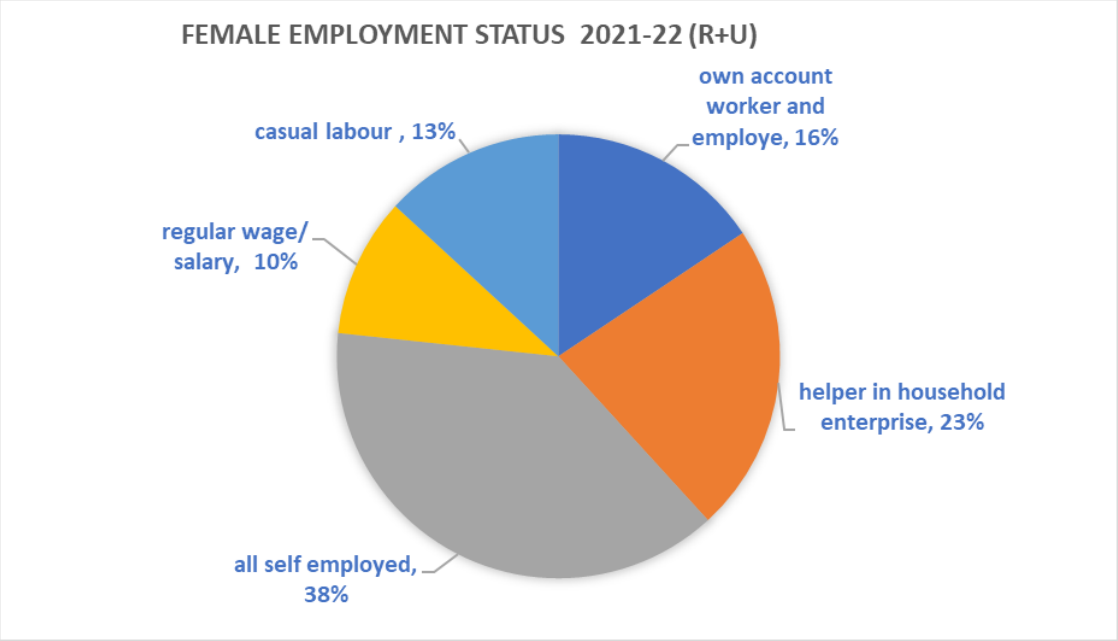
Source: Calculated by Mehrotra and Parida, 2017 from various NSS rounds

How different socio-economic conditions affect female labour force participation is shown in Figure 3. Basically, in given figure comprises the four sections of socio-economic dimensions age groups, level of education, marital status and social groups and their respective indicators. Hence, among the four social groups in marital status, the married female labour force has highly participated with 99.6 million and after that age factors are also important, where age 30-59 years female is 84.3 million. Here, one thing is very unlikely observed, generally, it is found that when people are

more educated, they acquire more skills. The skilled people's work participation rate increases according to their skill. But in the case of females, there are highly illiterate female labour force with 66.6 million, especially in the year 2004-05.

Employment status of Female workers

Figure No. 4 Distribution of Female Workers by Type of Employment in Percentage



Source: PLFS report 2021-22

Based on employment status estimates from 2021–2022, Figure 4 shows the percentage distribution of female workers in usual status (ps+ss) throughout rural and urban areas in India. As per the NSSO, the employment status is broadly categorised into three parts such as self-employment, regular wage/salary and casual labour. Three job statuses are included in self-employment: own account worker, employee, and assistant in household enterprises. So, as per Figure 4 females are more engaged in self-employed with 38 percent. Account workers are those workers who operate their enterprises with or without hiring any labourers. But here questions are why females are more interested in this section. The nature of work as a helper in household enterprises is mostly family members engaged in their household work without receiving regular salaries/wages (NSSO, 2007-08). In India it has been observed that females are more participate in domestic work like cooking, caring for kids, to manage of other household activities and so on. Therefore, self-employment is more significant for females as compared to other employment statuses.

6. Conclusion

A process of inclusive and sustainable development must include women's engagement in the labour force and their ability to find adequate employment. Several studies have shown that maximising women's economic potential is essential to raising economic development and productivity. Additionally, advancing women's economic empowerment depends on lowering barriers to decent labour associated with gender. It has been observed that the difference between LFPR and WPR has grown, and thus the result was a rising unemployment rate. The LFPR has decreased for both men and women, although the rate at

which women were leaving the labour force was significantly higher. When comparing Bihar's labour force participation rate to that of India as a whole, Bihar's rate was lower for women. This implies the precarious labour market situation for females in Bihar. Thus, the need is to open new employment opportunities for not only males but also females.

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