

Chapter II

Women's Labour Force Participation- Related Issues

2. 1. INTRODUCTION

In recent decades some progress for women has been witnessed in the world of work, education and reduced gender inequalities in several parts of the world. Changing social and cultural norms which can be attributed to the strong feminist movement has contributed significantly to the improvement in women's status. Nevertheless, major variations across regions and nations in terms of gender gaps in participation rates, occupational distribution, working conditions and wages are still evident, and much still needs to be done.

The labour market of the developed countries such as United States, Canada, Great Britain and Germany have shown a marked increase in the participation rates for married women as compared to non-married, widowed or divorced women during the twentieth century, although participation rates of married women is lower than that of other women (Killingsworth and Heckman, 1986, pp. 106-109). Increase in women's earnings as the Western economies developed with rapid expansion of the service sector appears to have contributed to the increased participation of married women in the western world (Becker, 1981, pp. 54-55). The increase has also been attributed to technological factors such as introduction of time-saving consumer durables that reduced the time required to carry out traditional tasks in the household such as washing machine, vacuum cleaner etc. (Greenwood, Seshadri and Yorukoglu, 2004), the advent of the pill (Goldin and Katz, 2002) that enabled women to control fertility etc. (cited in Fernandez, Fogli and Olivetti, 2004).

Paid employment of women has however increased at a slower pace and women continue to bear a larger share of unpaid work with almost two-thirds of all employed women in developing countries working as family workers or own account workers in highly vulnerable jobs with no security and benefits (Agenor and Canuto, 2013). On an average, it has been observed that 35 to 50 per cent of the total work time is spent on unpaid work all over the world (Antonopoulos, 2009) with the maximum amount of it being performed by women (cited in ActionAid, 2017, p. 13). The OECD Gender Institutions and Development database (2014) reports that internationally, the amount of time spent by women on unpaid work is approximately three times the time spent by men; the situation in India being much worse with the extent of women's unpaid care work being 9.8 times that of men (cited in McKinsey Global Institute, 2015). A valuation of such unpaid work would contribute \$0.3

trillion to India's economic output (*ibid*). Not only do women perform majority of the unpaid work, even where paid work is considered they are found to be concentrated in certain occupations which are considered "feminine" with their earnings being lower compared to that of men. The ILO (2016), reports that most of the women are engaged in non-standard, informal, temporary, part-time and low-paid jobs (ILO, 2016, p.1).

Since women comprise almost half the global population, keeping them out of the labor force causes enormous loss to the economy as higher rates of female labour force participation have been found to enhance economic growth and alleviate poverty (ActionAid 2017, p. 13). The McKinsey Global Institute (MGI) (2015) estimates suggest that women in India represent only 24 percent of the labour force that is engaged in any form of economic activity, compared to the global average of 40 percent and their contribution to GDP is only 17 percent which is much lower than the global average of 37 percent, and the lowest among all regions in the world. This may be attributed to the social attitudes about women's role in society. The report also states that \$2.9 trillion of additional annual GDP in 2025 could be added in India by fully bridging the gap in the workplace, which is 60 percent higher than business-as-usual GDP in 2025 (*ibid*).

The labour market behaviour of women has attracted the attention of several scholars, and over time a great number of researches have been conducted to identify the causes of women's participation or non-participation in the labour market and other issues related to women's labour supply. Women's labour supply decisions are not uniform and exhibit considerable cross-country variations. Chapter I has introduced the topic of female labour force participation and has also presented the theoretical perspective on the subject. Having realised the relevance of studies on female labour force/work participation, the present chapter presents a review of related literature on some important issues related to participation of women in economic activities. Owing to the vastness of available literature on female labour force/work participation, the present chapter has taken up literature review only on certain key issues such as determinants of female labour force participation, time use studies, gender differentials in wages, women in agriculture and women's issues in hill regions.

2.2. WOMEN'S WORK PARTICIPATION

2.2.1. A Global Perspective

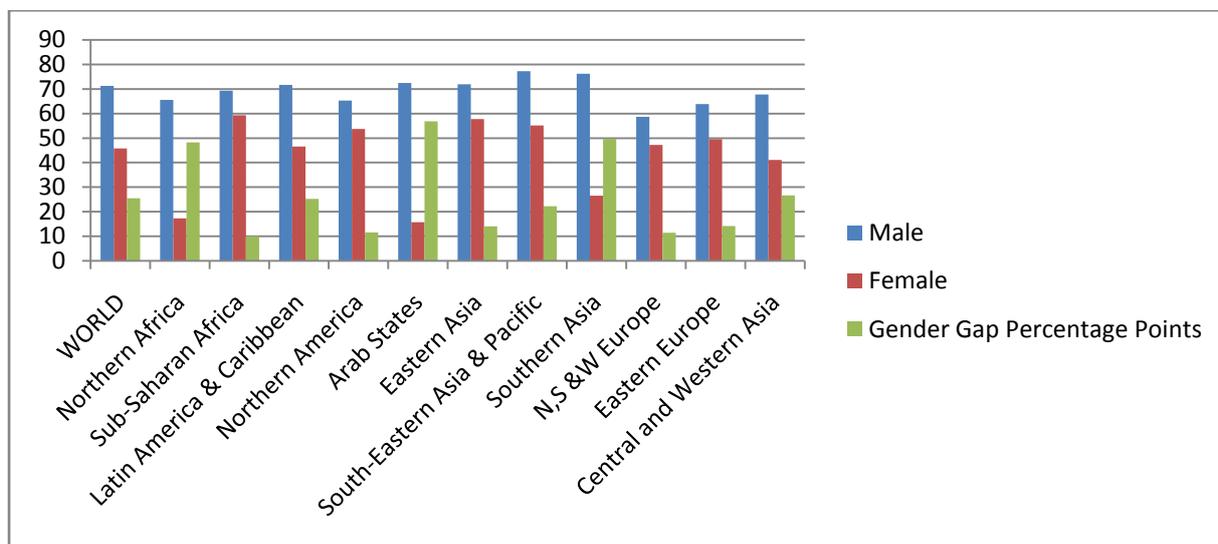
Woman as an important human resource has been not been utilized fully with female labour force participation rates being lower than that of male participation rates, the world over. In

2012, out of the total labour force of 3.3 billion, the female labour force was estimated to be 1.3 billion which was about 39.9 per cent of the total labour force. The global female participation rate was estimated to be 51.1 per cent and the rates varied between a low of 16 per cent in Jordan to close to 90 per cent in Tanzania with India being among the countries with relatively lower rates (ILO, 2012, pp.15, 17). It has been reported by the ILO (2016) that over the last quarter (1995–2015), there has been a decline in global female labour force participation rate from 52.4 per cent to 49.6 per cent, with the corresponding figures for men being 79.9 per cent and 76.1 per cent respectively, showing that the chances for women to participate in the labour market remain almost 27 percentage points lower than those for men (ILO, 2016, p. 6).

The figures for employment-to-population ratios (in percent) for male and female along with the male female gender gap for the different regions of the world for 2017 are shown in Figure 2.1. The figures reveal that at 48.5 per cent, women’s global labour force participation rate is 25.5 percentage points below that of men. The female participation rates are found to be less than 20 percent in the Arab States (15.7 percent) and Northern Africa (17.3 percent), whereas in Southern Asia it is 26.5 percent (ILO, 2018). Along with low participation rates, a large number of women especially in developing economies are found to be concentrated in low productivity informal jobs with no social security. Termed as vulnerable employment such jobs basically comprise contributing family workers and own account workers as opposed to wage and salaried workers and employers. The Global Employment Trends Report of the ILO (2012) points out the large differences between male and female vulnerable employment rates in different regions of the world ranging from 23.6 percentage points in North Africa to 0.7 percentage points in Latin America and the Caribbean (ILO, 2012).

The sectoral and occupational distribution of men and women is also found to be unequal with women being concentrated in certain sectors and occupations. Globally, women are found to be concentrated more in agriculture (36.4 percent as opposed to 32.8 percent for males) and services (47.4 percent as opposed to 41.3 percent for males) and less in industry (16.2 percent as opposed to 25.9 percent for males) in 2012. Occupational segregation has been observed in both developing and developed economies with men predominating in jobs such as “craft and related trades workers”, “plant and machine operators” and “managerial and legislative” occupations. Women, on the other hand are found to have high concentration in mid-skills occupations, such as “clerks and service workers” and “shop and market sales

workers”. This suggests that in comparison to men, women have limited opportunities and access to employment (ILO, 2012).



Source: ILO modelled estimates, May 2018. Available at: www.ilo.org/ilostat

Figure 2.1: Employment-to-population ratio (percentage) and Gender Gaps by Region, 2017

The gender gaps in labour force participation rates have narrowed in most regions of the world whereas in certain other regions they have increased owing to several factors. The regions which have experienced a narrowing of gender gaps are Europe, South-Eastern Asia and the Pacific, Central and Western Asia, Latin America and the Caribbean, Northern America, Sub-Saharan Africa, the Arab States, and to a lesser extent Northern Africa. The convergence has been attributed to several reasons such as- the “added worker effect”, increase in women’s employment in export oriented sectors following trade liberalisation, improved education, decreasing fertility, provision of subsidized child care etc. which have been found to vary across regions. In Southern and Eastern Asia there has been a widening of the gender gap in participation which has been attributed to conservative social attitudes towards women due to cultural and religious beliefs which reduce female participation rates as they devote more time to household production as compared to men (Agenor and Canuto, 2013; ILO 2016, pp. 6-7).

In South Asia, female participation rates range from around 20 percent in Pakistan to almost 80 percent in Nepal, which can be explained by differences in social and economic factors (Verick, 2014). Bhutan’s female labour force participation rate stood at 55.9 percent as opposed to 71.2 percent for males in 2015 which is higher than that of most countries in

the region. While Nepalese and Bhutanese women participate more due to less social restrictions (UNESCAP, 2016), women's participation in Pakistan may be constrained due to socio-cultural and religious norms. The lower participation rates in the Muslim countries have been attributed to socio-cultural norms and the importance of values such as family honour and modesty which carries with it a social stigma to women's paid labor (Moghadam, 1990; Jehan, 2000; Grace, 2004; Jaim and Hossain, 2011). Nepalese women especially in the rural areas have a higher work load primarily due to high male outmigration (Sherpa, 2007) and poverty considerations (UNESCAP, 2016). In some countries of South Asia there has been a rapid increase in women's employment which is due to the growth of labour-intensive, export-oriented sectors, such as the ready-made garment sector in Bangladesh together with a rise in livestock rearing (linked to access to micro-credit); and tourism in Maldives, as social norms identify many occupations in these sectors as women-centric (Rahman and Islam, 2013, cited in Verick, 2014; UNESCAP, 2016). However, gender gap in labor force participation is still evident in the region in spite of the gradual rise in female labor force participation over the decades (Mahmud and Bidisha, 2016).

2.2.2. Studies in India

India is one of the several countries with low labour force participation rates especially for females. The Hindustan Times (2017) reported that in its India Development Report, according to the World Bank India had one of the lowest female participation in the workforce, ranking 120th out of 131 countries for which data was available. The report further stated that job creation has been limited and men have taken hold of most of the new jobs due to the prevailing societal norms ("India ranks 120th", 2017). As per the recent statistics of the ILO, employment-to-population ratio for females in India was only 26.1 percent whereas that for males was 76.2 percent (ILO, 2018). According to the Census 2011, the female work participation rate in India is 25.5 percent and the male work participation rate is 53.3 percent (Census, 2011).

Using the two main official sources of data i.e. the decennial census data and the quinquennial rounds of National Sample Survey Organisation (NSSO) data, a large number of studies in India have focused on the problem of enumeration of the female workers, especially in rural areas which leads to their under estimation. The most important reason cited for this underestimation of women's contribution in productive work is the definition of the worker used in the different Census years which fails to incorporate women's unpaid activities on family farms as unpaid family labour. Further, the studies also point out that women perform both housework and productive work simultaneously and hence division or

distinction between the two becomes a difficult task (Sunder, 1981; Agarwal, 1985; Nayyar, 1987; Duvvury, 1989). Biases in data collection may also arise as a consequence of the gender of the respondent and the enumerator, as pointed out by Agarwal (1985). In most Third World countries including India, the respondent is mostly the male head of household or other male members whose responses regarding women's work status and her availability for work reflect a male point of view leading to an under estimation of women's work participation (*ibid*).

A notable phenomenon which has been discussed by scholars at great length in recent years is the decline in rural FLFP rates in India since 2004-05 as revealed by the different Rounds of National Sample Survey Organisation (NSSO). The rural FLFP for all ages according to usual principal status dropped from 24.9 per cent in 2004-05 to 18.1 percent in 2011-12. In the urban areas and among educated women the participation rates are even lower. When women work they are mostly engaged in marginal jobs, or as home-based workers i.e. family worker/unpaid worker or as domestic workers (ILO, 2017). The decline in female participation rates during a period of rapid economic growth in the economy has caused economists to delve into the reasons for this puzzling decline. Though several explanations have been offered for the observed decline it cannot be attributed to a single factor (Mazumdar and Neetha, 2011, Rangarajan, Kaul and Seema, 2011; Himanshu, 2011; Chowdhury, 2011; Neff, Sen and Kling, 2012; Mahapatro, 2013; Lahoti and Swaminathan, 2013; Sanghi, Srija and Vijay, 2015). While some studies attribute this decline to increase in the number of women pursuing education in the rural areas, others attribute it to the income effect whereby increase in household income due to increasing real wages causes women to move out of the labour force, while still others attribute it to the absence of or decline in employment opportunities in rural areas especially non-farm employment. Mahapatro's (2013) study conducted to investigate the declining trends in FLFP by sorting out the trends into age, period and cohort effect suggests that a considerable decline in labour force participation can be explained by the age and period changes although cohort is not of lesser importance. Lahoti and Swaminathan's (2013) study using state level employment data indicates that in India the observed decline in FLFP cannot be regarded as a normal outcome of the development process in which the FLFP increases with more growth, as has been the experience of several other countries. The study further mentions that, in India growth has not been employment intensive which affects women's labour market options more than men's. The key driver of growth in India, Lahoti and Swaminathan (2013) mention has been the services sector which requires more skills which are lacking in most Indian women. As

opposed to the services sector, agriculture and manufacturing are employment intensive but they have not led the growth process in India.

Inter-state variations in female participation rates have been observed in India and several studies have been conducted to explain these variations (Gulati, 1975). Within India, as one moves from north to south or from east to west the female participation rates have been found to increase (Nayyar, 1987). Miller's (1982) study which uses 1961 Census data finds that the internal hilly regions and the mountain districts bordering Tibet have the highest female participation; the reasons for which is attributed to the fact that these are areas which practice swidden cultivation and exhibit high rate of male emigration. In order to identify the possible factors for the interstate variations in female participation rates, several studies were undertaken. Most of the studies failed to yield satisfactory results as the explanatory variables were not found to be statistically significant (Gulati, 1975; Nayyar, 1987; Dholakia and Dholakia, 1978) since the rural FWPRs across Indian states could not be attributed to a single set of significant factors (Sinha, 2005). Gulati's (1975) study using 1971 census data used variables such as different levels of per capita income, literacy and male participation rates, the cropping pattern, varying proportions of scheduled caste (SC) and scheduled tribe (ST) population, or differing sex ratios; but could not explain the variations in female participation due to the use of aggregative data. Dholakia and Dholakia's (1978) multiple regression exercise, using variables such as per capita income, assets per household, structure of employment, sex ratio, average size of household and literacy did not yield a good fit model. Nayyar's (1987) regression exercise used 1961-81 Census data and various round of NSSO data from 1972-73 to 1983. Taking two independent explanatory variables at a time which included the incidence of rural poverty, the literacy rates, the co-efficient of variation in the distribution of landholdings in rural areas, the proportion of total agricultural labourers in the rural workforce, the price of cereals, per capita income, per capita production of food grains and state domestic product in agriculture at constant prices the study found none of the variables as being significant in explaining interstate differences in female participation rates at the macro level. Reddy's (1979) study however notes that female WPRs in India are influenced by socio-cultural factors and level of income. A more recent study by Srivastava and Srivastava (2010) using secondary data from different sources concludes that the only major variable explaining the inter-state variation in total rural female WPRs is the share of SC/ST in the population. The study also shows that as a whole the variations among the states in WPRs in non-agriculture and participation in wage labour outside agriculture

depends on women's average educational level and other factors reflecting women's economic autonomy and their control over resources.

Although macro studies do not yield any significant results, the micro studies point to the importance of economic and socio-cultural factors in determining female participation rates in rural India (Nayyar, 1987). Poverty and landlessness appear to be the two main economic factors along with male wage rates, but in some cases socio-cultural factors, like religion dominate; while the levels of education and literacy and demographic compulsions have an insignificant impact on female participation rates in India (*ibid*). Sinha's (2005) study of female WPRs in four districts of rural West Bengal, viz. Haora, Puruliya, Murshidabad and Maldah using secondary data mentions that female WPRs are strongly influenced by region specific factors which make it difficult to make generalisation regarding the association between rural female WPRs and any relevant variable at the all-India or the state level. The study further observes that the role of non-economic factors in explaining rural female WPRs may be stronger in districts with lower female WPRs i.e. Haora and Murshidabad compared to those with higher female WPRs i.e. Puruliya and Maldah since the regression results for the latter two districts reveal a better fit than for the former two.

In the Indian context it may be said that the women's participation rates do not exhibit uniformity and vary across different states and regions with the rates being determined by an array of economic and non-economic factors many of which cannot be quantified or measured.

2.3. DETERMINANTS OF FEMALE LABOUR FORCE PARTICIPATION

While men's participation in work is largely determined by economic factors, the factors that determine women's work participation are varied and include factors like social, cultural, religious, reproductive, demographic etc. (Srivastava and Srivastava, 2010). It is also argued that women's economic activity is the result of the interaction between patriarchy, class and production conditions (Kak, 1994). In the Indian context women's entry into the workforce may be hindered by the traditional norms of class/caste which generally prevent upper class/caste women from working outside the family or cause them to take up specific tasks in the labour market (*ibid*). Some prominent explanatory variables identified by the different studies include education, income, family size, fertility, marital status, size of land holding, etc.

Reddy's (1979) study based on 1971 census data for 15 states attempts to explain the factors affecting rural female work participation in India by applying the multiple regression

techniques and five independent variables- the ratio of rural female cultivators to male cultivators, average daily earnings of men in agriculture, agricultural labour productivity, rural industry-mix index of female workers and density of rural population. The regression analysis revealed rural female work participation to be influenced mainly by socio-cultural factors and level of income.

Hafeez and Ahmad's (2002) study based on the field survey conducted in the district Mandi Bahaudin in Pakistan during 1998-99 attempts to identify factors which influence the labour market decision of educated married women. The study finds that while level of women's education has a significant positive impact on FLFP, monthly income of the household, number of other workers in the household besides husband and wife and financial assets have a significant negative impact on FLFP. Demographic factors such as age and the size and structure of the household have a positive impact on FLFP.

Dev's (2004) study uses NFHS-2 (1998-99) data to identify the determinants of female work participation and child labour. His analysis on logistic regressions shows that women belonging to large families show lower WPRs. In rural areas, a negative relationship was found between schooling and female WPRs, while size of the land revealed a positive relationship. Women belonging to the medium and high standard of living categories were less likely to participate in economic activities as compared to the low standard of living category. For the urban areas, years of schooling had a positive relationship with female WPRs, whereas size of the household and medium/high standard of living affected women's work participation negatively.

Srivastava and Srivastava (2010) have attempted to identify determinants of women's work participation and also explain their participation in specific types of employment using NSSO 2004-05 data. The variables used for the logistic regression analysis include age group, education, marital status, caste, religion, presence of children below five years, land holding size category, region and MPCE quintile. The results of the study indicate that women's education and autonomy helps women find better quality non-agricultural jobs and that participation in rural areas is determined by socio cultural factors.

Saha and Kalita (2015) have carried out a study to examine the labour supply behaviour of women in urban Tripura through primary survey. The study reveals the complex labour supply behaviour of women in Tripura. The study concludes that the factors having a significant and positive impact on urban women's labour supply behaviour are children above 15 years of age, marital status and number of people financially dependent on women, whereas factors having a negative impact are time spent at work and in household activities,

time required to travel to work place, monthly income etc. On the other hand, women's labour supply behaviour is not affected by the respondent's education and the education of the husband.

2.3.1. Economic Development and Female Labour Force Participation

An important explanation offered by economists for variations in women's labour force participation across nations is based on the levels of development in different countries as measured by their per capita incomes. The studies point to a U-shaped relationship between female labour force participation and level of development (Psacharopoulos and Tzannatos, 1989; Goldin, 1995). The U-shaped hypothesis suggests that at low levels of development female participation rate is high, but gradually declines with economic development, reaches a minimum thereafter which it again increases giving rise to the U shape. Countries with low levels of development and low incomes exhibit high female participation rates as they are characterised by family based subsistence agriculture. In the early stages of industrialisation, there is a decline in the subsistence sector where a majority of women are employed, with the decline in the subsistence sector being faster than the expansion of the industrial sector (Psacharopoulos and Tzannatos, 1989) leading to a decline in women's participation rates. This decline may be explained partly because of the rise in market opportunities for men relative to women and partly because of social restrictions on women's entry in the paid labor force in blue-collar jobs (Mammen and Paxson, 2000). Further, increased urbanisation which restricts opportunities for unpaid female family work, rising family incomes along with higher educational enrolments may also reduce the pressure on women to work or delay their entry into the labour force which reduces female participation rates (Psacharopoulos and Tzannatos, 1989). Later with economic development and rising incomes women's participation rates increase as a consequence of expansion of industrial and service sectors and increase in women's education (*ibid*). Decline in fertility rates reduce the burden of child-rearing and new jobs in the service sector may be available for women which are socially acceptable (Lahoti and Swaminathan, 2013) which leads to their re-entry into the labour force as shown by the rising portion of the U.

According to Mammen and Paxson (2000) many economists argue that the process of industrialization leads to "female marginalization" as mentioned by Boserup (1970) by restricting women's economic opportunities in comparison to men's, the implication being that women's lower labor force participation and their non participation in formal sector jobs reduces women's well-being. Nevertheless, whether women's well being improve or decline

as a result of development requires attention to how resources are allocated within families (Mammen and Paxson, 2000).

In this context it is worthwhile to mention the two hypotheses which have been put forward to explain the way in which patterns of FLFP are influenced by the levels of economic development in Third World countries-the modernization hypothesis and the world system perspective (Nam, 1991). According to the modernisation hypothesis, a high level of modernisation, measured in terms of economic growth is generally positively associated with a high level of FLFP. During the process of modernization, demand for labor increases, women's education and employment become socially acceptable and fertility declines (Bauer and Shin, 1987; Heckman, 1980; Standing, 1981 cited in Nam, 1991). Modernization therefore increases women's work participation and benefits women. The world system perspective also views economic growth as facilitating FLFP, the outcome however being due to the increasing marginality of lower working-class families and women's work gain importance as a supplement to household income in view of low wages. Moreover, increasing industrialization increases FLFP because industrialization in Third World countries depends on low-wage labor supplied predominantly by women, and thereby worsens the marginalized condition of working-class families as mentioned by several studies (*ibid*).

The rural areas generally exhibit higher female participation rates as compared to the urban areas. These rural urban differences in the female work participation rates in India can be explained in terms of the U-shaped hypothesis if it is recognized that the differences between the developed and the under-developed Third World is reflected in the levels of development of the urban and rural areas as mentioned by Reddy (1979).

The U-shaped hypothesis has been supported by several studies. Kamala Nath's (1970) study which analyses all-India 1961 Census data for 15 states and 311 districts of the 15 states, points out that the hypothesis of falling female work participation rate with economic development is not confirmed by the State level data but are supported by district level data. The international analysis which includes 37 countries also shows noticeable decline in female WPR with increasing income levels from countries in the lower group, to which India belongs, compared to the group with relatively higher income levels. The state level data do not support the hypothesis probably due to the fact that certain states are very large in size and may have areas which are highly developed along with areas which are poor so that the opposing influences may have offset one another while aggregating the data for the States (Nath, 1970). Lahoti and Swaminathan (2013) using state-level employment data for the period 1983-84 to 2009-10 has attempted to look at the relationship between economic

growth and women's economic activity in India. The study does not find a significant relationship between the two. The results of the study also suggest that dynamics of growth are more important in determining women's economic participation than growth *per se*.

Verick (2014) used data set for 169 countries for 2010 to examine the relationship between the log of GDP per capita (in purchasing power parity-adjusted 2005 constant international dollars) as a proxy for economic development and female labor force participation rate. The results of the study exhibited (weak) evidence of a U-shape although the nonlinear trend line is not a very good fit for the data due to presence of outliers (Verick, 2014). In the South Asian region, the relationship between income/GDP and LFPR is mixed if we take into consideration individual countries-while in countries like Bangladesh, Nepal or Pakistan female labor force participation has shown a moderate increase during the course of development, in India a declining trend has been observed with the Sri Lankan experience being mixed (Mahmud and Bidisha, 2016).

The validity of the U-shaped hypothesis, chiefly its robustness to different data sets and econometric methodologies has however been subject to debate (Verick, 2014). Psacharopoulos and Tzannatos (1989) remarked that all countries may not exhibit the U-shaped pattern and that there is a variation in the scale and amplitude of the U between countries and different periods of time. He further mentions that the labour market behaviour of women could be the result of several other interrelated factors that may even be more important than the economic effects of growth. In fact, female labour force participation is a complex outcome of a myriad of factors and cannot be attributed solely to changes in GDP per capita.

2.3.2. Female Labour Force Participation and Education

Educational attainment of women has been put forward as one of the significant determinants of female participation rates in developing as well as developed countries. The theoretical framework for explaining the relationship between FLFP and education is provided by the human capital theory. The human capital theory gives importance to education for increasing the productivity and efficiency of workers by "increasing the level of cognitive stock of economically productive human capability" which arises as a result of individuals' natural capabilities and investment in human capital for which provision of formal education may be regarded as a productive investment in human capital (Olaniyan and Okemakinde, 2008). Based on the human capital theory therefore, a positive correlation is postulated between levels of education and FLFP. Nonetheless, empirical studies in Third World countries show that the relation between levels of education and FLFP is not a simple one (Nam, 1991).

Srivastava and Srivastava (2010) opine that although education may not have a positive influence on woman's work participation, it is regarded as the most important factor that leads to better quality non-agricultural work for women who are in the workforce. They further mention that higher work participation needs to be accompanied by higher levels of education, and/or assets for improved employment outcomes and higher levels of welfare for women.

Certain studies postulate female education to influence female labour supply positively whereas others report a negative association between the two, while still others show evidence of a non-linear, sometimes U-shaped relationship especially in developing countries. Nam's (1991) study using data from the 1970 and 1980 Korean Population Censuses shows that in Seoul, Korea, women with middle school education or above were observed to be more economically active than those who were not educated. Lisaniler and Bhatti (2005) in their attempt to investigate the determinants of female labour supply in North Cyprus for the year 2001 found education to be a significant determinant of women's labour supply decision in North Cyprus with the effect of education being highest at the university and above level. Faridi, Malik and Basit (2009) while considering the impact of education on FLFP of 134 females in district Bahawalpure in Punjab, Pakistan conclude that all the education levels except basic education up to middle level have a positive and significant impact on FLFP. Another important conclusion drawn in this study is that although the educational status of parents does not affect FLFP, spouses' level of education has positive and significant effect on wives' employment. Chamlou, Muzi and Ahmed (2011) in their study of the impact of higher education on FLFP and the relationship between social norms and female labor supply using the Moroccan and Turk immigrants in Holland as a proxy for MENA (Middle East and North Africa) immigrants and Amman, Jordan, as a proxy for MENA region find that education has a strong positive impact on female labor supply, with an extra year of schooling increasing women's participation by 3 to 4 percent. However, taking the three levels of education, the study observes that secondary and levels below that do not affect FLFP, but higher education (post-secondary/university/post-university) has a positive and significant impact on it.

Gulati's (1975) study using 1971 census data for the different Indian states does not show any noticeable relationship between female work participation and literacy. The study also does not support the belief that the spread of literacy may adversely affect female participation rate in the early stages of development. The data from the socio-economic survey of urban women undertaken in Rangoon, Burma, during May to July, 1998

analyzed by the logistic regression model suggests that educational attainment does not significantly affect urban Burmese women from participating in the labour force, with the results being less significant for unmarried women than for married women (Mon, 2000). Jehan (2000) in her study on the role of women in economic development in Pakistan notes that the Pakistan Integrated Household Survey (PIHS) data shows that in rural areas education leads to a lowering of work participation rates and hours of work as number of educated women belonging to well off families in the rural areas is limited.

A strong J-shaped relationship between level of education and female participation in India is suggested by Reddy's (1979) study which uses 1971 Census data, depicting higher activity rates for illiterate females in rural and urban areas as compared to those with middle-school education followed by a steep rise in participation rates for females with educational level of matric and above, but falling in the case of ordinary graduates. In fact, Reddy talks about two "educational thresholds" for female activity rates-the first begins with matriculation and rises steeply for non-technical diplomas and reaches the peak for those with technical diplomas of less-than-graduate; and the second threshold starts with ordinary graduates who show low participation and rises steeply with post-graduate, professional, and technical education, reaching the peak in the case of medical education. The rural urban differences in female activity rates for matric and higher levels of education are almost negligible than at lower levels.

Srivastava and Srivastava's (2010) study which uses NSSO unit level data for 2004-05 shows that, in India work participation rate for illiterate women is higher than for women with higher levels of school education – a trend which is reversed only for women with technical/vocational education or graduates both in rural and urban areas; in comparison to men for whom there is a positive relation between levels of education and work participation rates both in rural and urban areas. In urban areas women's employment increases with increase in educational levels which is similar to that for men which shows a narrowing of gender gaps in urban areas.

Devasahayam's (2011, p.24) study of South, Southeast and East Asia mentions that although education increases the women's employment opportunities, gender bias continues to exist in some subjects which lead to women being concentrated in some professions and men in others. Citing Singapore's example the study states that although women took up studies in all the different subjects, larger proportions of women were found in certain subjects like education, humanities and social sciences, health sciences, and fine and applied

arts; and men in subjects like Engineering Sciences and Information Technology which were similar to the divisions observed in the West.

2.3.3. Female Labour Force Participation and Fertility

It has been argued that presence of children has an inhibiting effect on labour force participation of women since women have the primary responsibility of bearing and rearing children. Women belonging to the prime child bearing age generally have lower participation levels in comparison to women of other ages. Though a strong inverse relation between female participation rates and fertility have been observed in developed countries, such a relationship is either absent or weak in developing countries. The direction of the causal relation between the two is also ambiguous. The negative correlation echoes the “role-incompatibility hypothesis” according to which a negative relation between fertility and female employment arises since women face numerous problems in balancing between work and looking after children (Stycos and Weller 1967; Weller 1977; Narayan and Smyth 2006b, cited in Siah and Lee, 2014), the degree of which depends on the degree of incompatibility (Mehryar, Aghajanian, Tabibian and Tajdini, 2002). According to the feminist perspective, the incompatibility of work and motherhood may be regarded as emanating from the gender structures in society and the asymmetric power relations between husband and wife (Bernhardt, 1993). The economic perspective regarding the relationship between fertility and women’s employment emphasises the opportunity cost of children, according to which increase in the opportunity cost of children due to increased employment opportunities for women, will lead to decrease in fertility (Mehryar et. al., 2002). On the contrary, as pointed out by several studies, children’s presence may cause women to look for paid employment to provide for the children and family (Siah and Lee, 2014).

As suggested by several studies there is evidence of a weak link between fertility and women’s employment as a result of greater availability of child-care services, family policies e.g. maternity leave along with a change in social attitudes towards working mothers (Rindfuss and Brewster 1996; Brewster and Rindfuss 2000 cited in Engelhardt, Kögel and Prskawetz, 2004). According to the results of the World Fertility Survey (WFS) (United Nations, 1987 cited in Mehryar et. al., 2002) and Demographic and Health Surveys (Macro International, 1994, 1996, 1998 cited in Mehryar et. al., 2002) the relationship between women’s employment and fertility is not simple and linear. Several factors such as the nature of the economic activity, the cash outcome earned, and the circumstances under which it occurs, particularly the level of development of the country (United Nations, 1985 cited in Mehryar et. al., 2002) etc. may affect such relation. While women’s engagement in

agriculture or cottage industries may not lead to a decline in women's fertility, their employment in the modern and formal sectors will most likely result in a decline in women's fertility (*ibid*).

Reddy's (1979) study in India points to a "scissors relationship" between female activity rates and fertility in India for the age group of 25-49 showing that the rural female activity rates touch the peak, just as the age-specific fertility reaches the lowest among the 40-49 age group. Using macro-level time-series data from 1960 to 2000 for the developed countries of France, West Germany, Italy, Sweden, the UK, and the USA, Engelhardt et.al. (2004) find a negative and significant correlation between fertility and women's employment until the mid-1970s, after which the correlation becomes weak and insignificant. This result is in conformity with the hypothesis which posits that the incompatibility between work and motherhood may be reduced due to the institutional changes which include increase in availability of childcare and change in attitudes towards working mothers (*ibid*). Bernhardt (1993) mentions Kessler Harris' (1982) study of women in the labour force in the United States in which by examining the demographic trends she observes that women's child bearing years have reduced by nearly half, but at the same time their life-spans have increased so that women can spend more years of mature life without children or partners (cited in Bernhardt, 1993).

In the Indian economy where a large proportion of women are engaged in traditional occupations such as agriculture or home based enterprise etc. which are more compatible with child care, presence of children may not hinder women's labour force participation. However, the fact that this situation is changing in recent times due to a decline in traditional work opportunities and change in the perception of work with the spread of education, there is an upward pressure on age at marriage to raise the chances of pre-marriage work experience which offsets the negative effects of fertility on participation (Eapen, 1992).

2.4. WOMEN'S WORK AND TIME USE STUDIES

The importance of time use studies in the analysis of women's work stems from the fact that a large proportion of women's work is unpaid and undervalued albeit contributing vastly to the welfare and sustenance of the household. The implication of the invisibility or undervaluation of women's contributions is that women's status is subordinate to that of men within the household and in society. The undervaluation of women's work affects their status in society, their opportunities and leads to "gender-blindness of development policy" (UNDP, 1995, p. 87). Since women are burdened by unpaid work their ability to participate in the

labour market is constrained, which in turn limits their contributions to the income of the household reinforcing their subordinate status (Asian Development Bank, 2015, p. 5). It also means underestimation of national output. The Human Development Report (1995) states that rough estimates of all unpaid work of men and women and underpayment of women's market work at the prevailing wages stood at a staggering amount of \$16 trillion, which was about 70% more than the officially estimated \$23 trillion of global output, out of which women's invisible and non-monetized contribution was \$11 trillion (UNDP, 1995, p. 87).

Conventional labour force statistics' failure to notice women's unpaid labour encourages employing time use studies for evaluating the non-market work of women. Time use surveys provide information on how individuals spend time during the course of the day in performing different activities. Women's unpaid productive activities in the household which are omitted in traditional methods of data collection are captured by a time use survey which helps in estimating women's real workload (United Nations, 1991, cited in Bhatia, 2002). From a gender perspective, therefore, time use surveys are significant in drawing attention to the nonmarket work mostly performed by women (Asian Development Bank, 2015, p. 3) which help in policy formulations leading to greater gender equality (Hirway, 1999).

The advent of time use analysis may be traced to the early 1900s when they were used for the first time in social surveys to report on the living conditions of working class families. In countries where industrialization was in progress there was a growing concern about the proportions of work and leisure in the daily life of labourers due to long working hours, and organized labour advocated for the shortening of the working day (ed. Szalai, 1972, cited in United Nations, 2005). Beginning in the 1920s, time use studies were carried out in UK, the centrally planned economies and in USA for various purposes like development and community planning in the centrally planned economies, understanding the effect of new technology on the time use of farm homemakers in the USA, getting new insights into psychological and social motivations, the problem of commuting and the length of commuting time. Encouraged by the field of "new household economics" which focused on the unpaid household activities as being a part of productive activities, developing countries also started conducting time-use studies in the 1970s for development planning purposes (Asia Society 1978, cited in United Nations, 2005) concerning (a) the utilization of women and children as important human resources in the household, and (b) improving the

measurement of employment, unemployment and underemployment (United Nations 1990, cited in United Nations, 2005).

In India one of the earliest time use survey was carried out by Devaki Jain and Malini Chand in three villages each in Rajasthan and West Bengal during 1976-77 (Hirway and Jeyalakshmi, 2007). A time-allocation study on a sub-sample of Employment and Unemployment Survey conducted in the 38th Round (1983) of the National Sample Survey Organisation was also carried out in 1983 by the National Council of Applied Economic Research (NCAER). A pilot survey on time-use was also conducted by the Directorate of Economics & Statistics, Government of Tamil Nadu during 1996 (Gupta, n.d.). India conducted its first national time use survey on a pilot basis in 1998-99. The survey included six major states in India from six major regions: Haryana from North India, Madhya Pradesh from Central India, Tamil Nadu from South India, Gujarat from West India, Orissa from East India, and Meghalaya from North-East India (Hirway and Jeyalakshmi, 2007). Several time use surveys have also been carried out at the micro level for proper evaluation of women's work.

Time use data from industrialised as well as developing economies suggest that women spend more time in unpaid non-SNA (System of National Accounts) activities vis-a-vis men who expend more time on paid SNA activities (Chakraborty, 2007). The Human Development Report, 1995 and 2000 data for industrialised economies reveal that women's share in non-SNA activities ranges from 61 per cent of total work time in Canada to 81 per cent in the Netherlands; while male's share in non-SNA activity ranges from 21 per cent in Denmark to 48 per cent in the Netherlands. The proportion of total time spent on non-SNA work by women in developing countries ranges from 76 per cent in urban Columbia to 52 per cent in the mountainous region of Nepal. The proportion of time spent by men in non-SNA activities is as little as 13 per cent in urban Venezuela and 14 per cent in urban Indonesia (*ibid*). A study conducted in Indonesia in 2004 shows that women spent about 6 hours working for business, 3 hours cooking food two times a day, 2 hours cleaning the house and yard, and about 1 hour for washing clothes, collecting water and firewood, going to the market, animal caring, and community gatherings respectively (Gagliardone, 2015). The Report of the OECD (2011) on Asia and the Pacific found that total work time which included paid, unpaid, market and nonmarket work was not uniform across the region, with the highest in Mongolia (10 hours for men and 11 hours for women) and lowest in Cambodia (6 hours for men and 7 hours for women) with women's total work time being consistently longer than men's and men spending consistently more time in market work as compared to

women who spent more time in non-market activities (Asian Development Bank, 2015). As reported in the International Labour Organisation's (ILO) Global Employment Trends 2012, taking a sample of 35 countries, Berniell and Sanchez-Paramo (2011) (cited in ILO, 2012) find variations in time spent on housework by women, with women spending 30 per cent more time than men in Cambodia and 6 times more in Guinea. Despite these regional variations, the fact of the matter is that women all over the world spend more time on housework as compared to men. It is therefore crucial that time-use be made more equal between men and women for achieving gender equalities in the labour market and elsewhere (ILO, 2009, cited in ILO, 2012).

Bhatia's (2002) study using the time use survey data conducted by Central Statistical Organisation (CSO) for 1998-99 shows that while the average time spent by an average man in a week in doing work is nearly 45 hours, the average time spent by an average woman is over 53 hours a week. Although women are found to spend a large portion of their time (20.61 percent) on extended SNA activities as compared to men whose contribution is much less (2.17 percent), their contribution in SNA activities is also quite significant (11.14 percent) albeit lower than that of men who spend a larger percentage of their time on SNA activities (24.98 percent).

In 2011-12 time use survey was conducted on a sample of 200 households in rural Punjab. The results reveal that women spend only 4.9 percent of their time on SNA activities as opposed to men who spend 22.6 percent. However, they spend 56.6 percent of their time on non-SNA activities and 38.5 percent on extended SNA activities due to greater family responsibilities. In a week, women spend about 17.4 hours for cooking, 9.3 hours for taking care of guests and visitors and 7 hours for cleaning, washing clothes, and taking care of children respectively. The results of the time use surveys in India clearly show that women are predominantly involved in subsistence production and informal jobs both in rural and urban areas, with their work being "scattered, sporadic and poorly diversified", and they spend long hours in unpaid SNA and non-SNA work. This requires policy changes to achieve the objectives of gender equality (Gagliardone, 2015).

2.5. WOMEN'S WORK AND WAGE DIFFERENTIALS

Women's paid work is generally used to gauge women's progress and their status in society. Nevertheless gender gaps in wage earnings persist as is evident from several studies with women's earnings being lower than that of men. The global gender wage gap is estimated to be 23 per cent; which means that women's earnings are only 77 per cent of men's earnings

(ILO 2016, p. xvi). The gap between women's and men's median earnings was estimated at about 20% in Turkey compared to an average of 14% in 24 European economies as revealed by OECD data (cited in UNESCAP, 2016). In India, women's estimated earnings are found to be 10-15% less than men after considering education and work experience (Bhalla and Kaur, 2011 cited in *ibid*).

In the neoclassical framework the human capital theory and the theories of discrimination are used to explain women's lesser earnings in comparison to that of men. Gender ideologies which define the roles for men and women and the type of tasks they perform may also provide justification for the gender gaps in labour market opportunities and wages for women. The gender gaps in wages cannot be linked only to variations in education or age, but may also be the result of less valuation given to women's work and of the skills required in female-dominated jobs, discrimination, and the intermittent nature of women's work (ILO, 2016, p.xvi).

Agarwal (1989) delineates a number of reasons for the disadvantaged position of women in their access to employment and earnings in comparison to men. The reasons are: (a) lesser mobility between jobs due to responsibility of childcare, female seclusion, and women's vulnerability; (b) limited information on job opportunities due to lower literacy, lesser access to mass media, and less interaction with the market place; (c) confinement to casual work in agriculture; (d) lower wages for the same tasks, due to the ideology regarding women's work being supplementary and less productive, and by the lack of unionisation among female workers; (e) the form of payment; and (e) exclusion from machinery which raises productivity, since the induction of such machinery leads to women's displacement as they are not trained to use them and therefore remain confined to manual task. These factors are found to be important in relation to agricultural work as well as non-agricultural work both in the informal and formal sector (Agarwal, 1989).

According to Chattopadhyay (1982) micro-type empirical studies on agricultural labour reveals that besides the difference in wage rates between male and female labour, there are several aspects of the terms and conditions of the employment of male and female labourers like duration of employment, the basis and means of payment, wages, nature of work, labourer's dependence on employer and so on which call for a more meaningful distinction between male and female labour. Apart from secondary data his conclusion can be justified with the data collected from the villages surrounding Sriniketan, Birbhum, West Bengal, during the year 1976-77 which points to a customary division of labour between the sexes with respect to certain operations such as interculture and transplanting, winnowing etc.

On the basis of data on agricultural wages in India for 1964-65 to 1980-81 Nayyar (1987) observes that the male wage rate exceeded the female wage rate quite sharply for all agricultural operations considered together and separately, though a slight narrowing of the differential was observed for India between 1964-65 and 1974-75. However, despite lower wages for women workers, employers have a preference for male workers due to socio-cultural prejudices preventing women's free participation in productive work (Nayyar, 1987).

According to the Rural Labour Enquiries (RLEs) of 1964-65 and 1974-75, Agarwal (1989) notes that female annual earnings are consistently lower than male's for both the years, and is less than half in 5 out of the 14 states examined, and almost half in most of the others in 1974-75. She further notes that the absolute differentials are higher in the north-west as compared to other regions and highest in the Punjab. When the total wage earnings, both agricultural and non-agricultural work were considered, the gender differentials were even greater in both the years. The inter-regional changes in the differences during the period were also found to be similar to those observed for agricultural earnings alone (Agarwal, 1989).

Barua's (2010) study was carried out in two districts of West Bengal, including the advanced district of Nadia and the backward district of Jalpaiguri, between May 2006 and February 2007. The study reports existence of wage variations among male and female agricultural labourers with lower daily wages for female agricultural labourers as compared to their male counterparts. According to most agricultural labourers the low wage rate for female agricultural labourers was attributed to the fact that the work done by female agricultural labourers involved less physical activity.

Using different Rounds of NSSO data, Sharma and Saha (2015) show the presence of gender gap in average wages between male and female workers. The study further mentions that the wage gap between rural and urban women have widened between 1993-94 and 2011-12 whereas the differentials are not so striking for males which puts the male workers in a comparatively better position than female workers (Sharma and Saha, 2015).

Sundar (1981) opines that the lower wages paid to women cannot be attributed to women's lower productivity, but is the outcome of "cultural attitudes and practices and power structures in a society", and also depends on the nature of their respective supply functions. In agriculture, the gender wage gap can be attributed to a segregation of activities undertaken by men and women that partly justifies the wage gaps between them (Chakraborty and Chakraborty, 2009).

The presence of the gender pay gap shows how women's work is valued, and often reflects gender discrimination and occupational segregation of women workers in certain

types of activities where the work and skills of women are undervalued (ITUC, 2008, p. 47; Srivastava and Srivastava, 2010). The undervaluation of women's contributions which may be because of her gender, is evident not only within the family but also during policy formulation and implementation of development programmes and reinforces gender related deprivation (Agarwal, 1997). This undervaluation of women's contributions is not confined to developing countries. In the Western world, feminists raised the issue of "wages for housework" by recognizing the invisibility of unwaged work which was regarded as having little value. From studies of American households Paula England and Barbara Kilbourne (1990) argued that the bargaining power of women who earned cash was more than that of housewives due to housework being regarded as less valuable; and women's intra-family bargaining power could be increased through their participation in wage labour (see also Sen, 1990) (cited in Agarwal, 1997).

2.6. WOMEN IN AGRICULTURE

Women contribute significantly to agricultural production, nonetheless the nature and extent of their involvement varies across class, caste, type of crops, farming systems etc. Measurement of female participation in agriculture depends upon the range of activities included as part of agricultural production and agricultural work needs to be defined broadly to capture women workers (Unni, 1989) since a lot of activities performed by women in agriculture-based subsistence economies may be subsumed as domestic or household work. Of the several studies conducted on women and agriculture in India and other developing countries most point to the fact that women's contribution to agricultural production is much more than they have been given credit for (Sardamoni, 1987; Krishnaraj and Kanchi, 2008). In the last few decades women's role in agriculture has expanded as more men move out of agriculture to join other sectors, and agriculture is being increasingly dependent on women, although an Indian farmer is perceived to be primarily male (Krishnaraj and Kanchi, 2008, p.1).

Ester Boserup's (1970) pioneering work distinguished between the male and female farming systems with the male farming system being found in densely populated regions characterised by extensive plough cultivation, and female farming system in sparsely populated regions where shifting cultivation is practiced. Boserup suggests that female seclusion will be found in plough cultivation where requirement for female labour is less as compared to wet rice cultivation where female labour is important and as such not subject to seclusion. Similar views have been expressed by Moore (1973) (cited in Miller, 1982).The

gendered nature of farming activities can be observed even today in farming systems the world over with the gender roles varying across different farming systems, the type of crops cultivated etc. The dichotomy in men's and women's jobs or "market segmentation" in agriculture clearly depicts that women are invariably confined to the jobs which are poorly paid, low technology and inferior (cited in Nayyar, 1987). Further, where men and women perform the same tasks, the males receive a higher wage than the females (*ibid*).

In India, agriculture is the primary activity for the women in the rural areas. The 2011 Census records 65 % of total women workers to be engaged as agricultural workers. Significant variations among states are nonetheless evident. Ghosh and Mukhopadhyay (1984) in their study of female in the Indian labour force using 1971 and 1981 Census data have stated that the inter-state difference in female work participation rates may be explained by the differences in the pattern of female labour used in different types of cultivation with rice growing states like Kerala, Maharashtra, Tamil Nadu and West Bengal using female labour more intensively which is in sharp contrast to states like Punjab or Haryana growing mainly wheat or millets under irrigated conditions. The study further states that even among the rice growing states variation in work participation rates has been observed. Gulati (1975) also supports the view that more women are involved in cultivation of rice as compared to cultivation of crops like wheat which require more physical labour. Nayyar (1987) however notes that the eastern states of India, especially West Bengal, in spite of being a rice growing state and having high incidence of rural poverty, both of which should induce high female participation are characterised by low female participation rates, which could possibly be explained by non-economic factors.

Agricultural labourers constitute a significant section of rural workers in India. They belong to the lowest rung of the socio-economic ladder yet they do not form a homogeneous group. Female agricultural labourers bear an even heavier burden of poverty and workload by virtue of their gender. Reddy (1979) states that while the work burden of the male worker for the day generally ends with the period of wage employment, that of the female agricultural worker extends beyond the field and into the household (Reddy, 1979). Using Census data for the period 1961-1981, different rounds of NSSO data from 1956-57 to 1983 and Agricultural and Rural Labour Enquiries data for 1974-75 Unni (1988) notes that on the whole there is a trend towards an increase in the percentage of casual workers and the proportion of agricultural labour households over the entire period. The study mentions that the percentage of agricultural labour household among all rural households for the country as a whole increased from 22 per cent in 1964-65 to 31 per cent in 1983. He further mentions that the

proportion of agricultural labourers in the workforce is likely to increase due to two main reasons- (a) agricultural development and increase in productivity of land, and (b) the division of households along with fragmentation of holdings with an increase in the number of economically unviable holdings which cause such farmers to hire out their labour for supplementing family income or join the ranks of agricultural labour. In the recent Indian Census data i.e. from 2001-2011 an increase in the proportion of agricultural labourers among total and rural agricultural workforce has been observed for both men and women. For male workers, growth rate of agriculture labourers in the marginal workers category is significantly higher than for main workers category which is the other way round for the females (Venkatanarayana and Naik, 2017) which is an indication of casualisation of the rural female agricultural workforce.

In rural India women belonging to the category of landless agricultural labourers and marginal and small farmers are forced to search for jobs to supplement family income due to their low levels of per capita income and landlessness while low wage rates discourage women of high income families to participate in economic activities which has been termed as the “discouraged worker” effect (Nayyar, 1987). According to Reddy (1979) the “discouraged worker” effect also occurs due to high density of population in the rural areas, where competition between men and women generally drives women out of the labour force as men are usually preferred to women. The participation of agricultural labour particularly women and their entry and exit from the workforce depended on the income levels of the household which is fluctuating and unstable. This implies that the primary reason for women’s participation appears to be the economic benefits to household through women’s increased participation (Unni, 1988). In this sense women’s participation may be regarded as distress participation. Seasonality also affects the female participation rates more than male participation rates since women withdraw first from the labour market in order to give males an opportunity to find work first which has been termed as “sexual dualism” (Nayyar, 1987). Seasonal employment of women labourers has been supported by various studies.

A study of Farm Management Reports of Madhya Pradesh (1956-57), Maharashtra (1967-68) and Assam (1970-71) was carried out by Chattopadhyay (1982) in which he observes that, firstly there are some types of agricultural operations (e.g., harvesting, interculture and transplanting) for which female labour is preferred by employers due to the nature of the work as they can be paid lower wages, and secondly females are preferred to males for certain operations in those areas where cultivation is highly non-mechanised.

Nisha's (2008) study on 120 women labourers in agriculture in Palakkad district in Kerala shows that maximum employment was obtained by the women labourers in agriculture during *kharif* (57.62 days) and *rabi* season (54.91 days) with highest employment measured by the number of days in weeding (46.28 days) next only to harvesting and post harvest operations (36.90 days). With the exception of harvesting and post harvesting operations, for all other operations they received wages in cash. The women labourers were unemployed for maximum days in summer (110.04 days).

Sengupta's (2012) study of investigation of the correlates of work participation of women cultivators and women agricultural labourers in the districts of West Bengal during the post reform period reveals that for women cultivators, the significant explanatory variables are 'percentage share of irrigated area in net sown area in a district' and 'urbanization index of a district', whereas for women agricultural labourers, the significant explanatory variables are 'percentage share of working-age women population in total rural women population in a district', 'cropping intensity of a district' and 'percentage share of irrigated area in net sown area in a district' throughout the whole period.

Kerur (2014) conducted a study of agricultural labourers in Bijapur district of Karnataka. The study concluded that out of the total employment in agriculture in a year, women agricultural labourers got 46.25 per cent during the *kharif* season, 42.40 per cent during the *rabi* season and only 11.35 per cent employment during the summer season with least employment in the month of May. Women labourers got on an average Rs. 12,195.00 in *kharif* season, but in summer season women labourers received only Rs. 3,180.00. According to the women agricultural labourers, poverty was the main problem followed by off season unemployment, lack of alternative sources of employment, non-availability of MGNREGA jobs, indebtedness, discrimination in wages, low wages and illiteracy.

Murugan's (2014) study of agricultural women labourers in paddy cultivation in Thoothukudi district of Tamil Nadu reveals that in all the three farm sizes in the study area two-thirds of the farm activities were undertaken by females and one-third by males with women being involved in activities like transplanting, weeding and harvesting and men in ploughing, spraying and manuring. The study also points out that women received only half the wages received by men despite working for a greater number of mandays than men. Women's seasonal unemployment in agriculture has severely impacted the income, expenditure, savings and debt position of the labourers.

Agricultural labourers despite being the backbone of Indian agriculture have not been provided with work which would enable them to earn sufficiently throughout the year, which

along with lack of maternity, child and health care facilities points to the fact that agricultural labourers may have been overlooked in development planning (Sardamoni, 1987).

2.6.1. Women and New Technology in Agriculture

The agricultural prosperity as a consequence of the new technology in agriculture which included high yielding variety (HYV) seeds, mechanical equipment, etc. had significant effects on the Indian economy. The new technology impacts men and women in different ways since the extent and nature of involvement of men and women in agricultural field work, non-field work, including cattle rearing, domestic work and child care, etc. and the extent of their control over and pattern of distribution of household earnings and of consumption items may be different (Agarwal, 1984).

As mentioned earlier agriculturally prosperous regions have been associated with lower female participation rates. The increases in household income due to prosperity in agriculture brought about by the new technology or the Green Revolution led to withdrawal of marginal workers, i.e., women, children, elderly men from the labour force due to the “discouraged worker” effect causing women to devote more time to their homes, children and education leading to a decline in their participation rates as corroborated by studies especially in agriculturally advanced states like Punjab and Haryana (Reddy, 1979; Chattopadhyay, 1982; Nayyar, 1987). It may however be noted that although there is a substitution of women’s field labour by hired labour with increase in family income due to family status, women’s work within the household such as cooking etc. cannot be substituted by hired labour even in the households who are economically well-off, which implies that although women may withdraw from working in the fields they are required to spend more time on non-field related work (Agarwal, 1984).

The change in use of human inputs to technical inputs brought about by the Green Revolution led to a marginalisation of women’s work as their roles in agriculture shifted from being regarded as primary producers to being regarded as subsidiary workers. Mechanization of agriculture, an important characteristic of the Green Revolution may lead to “gender discrimination and class polarization” as women from subsistence and marginal households are displaced (Mallaiah, 2009). Although mechanisation led to displacement of agricultural labourers, it was likely the first ones to be displaced were the more marginal workers which included children, elderly men and women with adult males remaining for the longest time (Billings and Singh, 1969). It has been observed that where manual labour is replaced by the introduction of machines women may lose their jobs as they are primarily responsible for undertaking the manual tasks while men get the new jobs of operating the machines

(Mallaiah, 2009). Dhillon's (1980) study on the changing role of rural women in Ludhiana District of Punjab found that women's contribution to agriculture was declining as they were incapable of dealing with the technological advancement, and they continued doing certain monotonous farm activities related to harvesting and processing of food-grains. Mencher and Sardamoni (1982) in their study of female agricultural labour in rice producing villages in Kerala, Tamil Nadu and West Bengal mention that the introduction of any technology or innovation in paddy cultivation would lead to a loss of employment opportunities for women, which in the absence of alternative employment opportunities create more hardship for them. Achanta's (1982) study reveals that in villages where agriculture is modernised, a decline in women's economic activities has been observed as compared to villages where traditional farming is still in use as they are not able to cope up with new innovations in agriculture. The study mentions that this is partly due to negligence of extension personnel to organise training programmes for women, and partly due to conventional view that women and machines do not go together. During the last half of the 1970s the share of women workers declined due to the result of certain changes in agriculture such as the use of chemical fertilisers instead of manure, and introduction of weedicides which narrowed down the range of activities previously performed by women considerably, while new activities such as spraying of pesticides etc. which involved the use of machinery, were allocated to male workers (Bhalla, 1989). Gupta and Maiti (2008) note that in eastern Uttar Pradesh, use of machines like combine harvester threw women out of jobs and led to a decline in the number of working days for them during the harvesting season.

Basant (1987) notes that the new technology along with its various components has led to an increase in the share of hired labour relative to family labour and male labour relative to female labour. As regards the additional demand for hired labour which rose due to the intensive nature of the new technology, Bhalla (1989) notes that given the fact that Indian agriculture is characterized by surplus labour, the introduction of the HYV technology which raises the demand for hired labour reduces the female share of field labor days as the vast majority of hired labour days are supplied by male workers, and that the share of female labourers is likely to increase only if there are bottlenecks with regard to male labour supply. She further notes that the hired female labour days per acre figures rose from about six days to about nine days per acre only in regions with a less adequate supply of male labourers (Bhalla, 1989). Evidence also indicates that the adoption of the HYV package in India led to greater usage of hired male labour with women being employed only when there was a shortage of labour and for specific operations like cotton picking, increasing the unpaid

family labour days for women. In instances where women are engaged as wage labour their wages are lesser than those paid to male workers and hardly above the subsistence level (Kak, 1994).

Yet, certain studies point to the increase in the use of casual hired female labour due to the introduction of the new technology. Regarding the effects of new agricultural technology, particularly High Yielding Variety (HVY) rice on female employment in three principal rice-growing states, viz, Andhra Pradesh, Tamil Nadu and Orissa, Agarwal (1984) notes that the adoption of HVY rice tends to increase the use of both male and female casual labour time. The impact on the use of female family labour is however clearly not predictable in all the three states due to the fact that on the one hand the use of HVY rice increases the requirements of farm labour which induces intensive use of female family labour, on the other hand, the increase in family income leads to a withdrawal of women from manual field work due to family status. Increased absorption of female labour per unit of land especially under HVY paddy at least in the early years have been documented by several studies as mentioned by Krishnaraj and Kanchi (2008, p. 109). Joshi and Alshi's (1985) study regarding the impact of HYVs on female labour employment in Akola district of Maharashtra state also reveals that the requirement of casual hired female labour increased considerably due to the adoption of HYV of cotton and jowar- about 157 per cent more female labour per hectare in HVY cotton farms over local variety, and 26 per cent more female labour in HVY jowar crop over local variety. Chand, Sidhu and Kaul's (1985) study in Punjab revealed that modernization of agriculture has led to an increase in the employment per hectare of cultivated area for all kinds of female labour and a decline in the differences in the male and female wage rates.

The impact of Green Revolution on female employment has presented mixed results. Studies conducted especially in the post eighties period do not lend support to the argument that technology adversely impacted female labour force participation, and neither to the phenomenon that casualisation nor unemployment was specific to technologically advanced states (cited in Krishnaraj and Kanchi, 2008, p. 109-110). Nevertheless, there are studies which point to the contrary. Krishnaraj and Kanchi believe that "the conclusion arrived at appears to be largely dependent upon the vantage point in terms of the time that has elapsed between the introduction of a new technology and the assessment of its impact".

2.6.2. Women's Work in Hill Regions

Hill and mountain regions are some of the least developed regions of any country owing to harsh climatic and environmental conditions, remoteness and difficult access. Among the

poorest and most disadvantaged people in the world is the mountain community who is confronted with political, social and economic marginalization and lack access to basic services such as health and education. Moreover, they are distantly located from the centres of commerce and power, as such they have little influence on the policies and decisions that impact their lives, and their voices often go unheard (FAO, 2011). Women in these regions especially those in the rural areas therefore face marginalization twice over, firstly by virtue of the marginalized environments in which they live and secondly by virtue of their gender. Although high rates of female labour force/work participation have been observed in hill and tribal belts it has been noted that most of these female workers are family farm labour, not wage labour who are required to work in the field and manage farms as male labourers tend to migrate. The major constraint faced by women looking for wage employment in the hills is the overall scarcity of jobs (Chen, 1989; Roy and Tisdell, 1993). Besides male-migration which causes women to work on and manage farms, low levels of class hierarchy in the hills relative to the plains is also the reason for the limited use of hired labour (Chen, 1989). In Nepal, the decade long armed conflict, which started in 1996, could have led to extra work for women as they were left alone to look after their families as heads of household and sole bread winners due to family separation, husband's death, displacement of men, migration and disability (Menon and Rodgers, 2011). The high work participation of women in the hill regions however, does not indicate better life, "it only depicts their servitude to the hard economic life of their habitat" (Pande 1996, p.32).

Historically, women's labour has been crucial for the sustenance of the hill village economy (*ibid*, p.23). Women in rural households of the hill regions contribute a lot to farm activities as highlighted by several scholars with some studies reporting some tendency towards sexual division of labour in agriculture, rearing of farm animals and household activities. These studies have brought to light women's roles in productive activities in mountain farming systems measured both in terms of the number of women working and the number of hours worked.

Bhati and Singh's (1987) study of total labour inputs of 120 farm households in Himachal Pradesh finds that women's labour accounts for 61 percent of the total farm work in comparison to men's 39 percent with women's participation being greater in tending of farm animals. There was some gender division of labour in agriculture with men specializing in heavy and seasonal work and women in light and regular work. The study further observed that on an average the time spent by a woman and a man on farm work was 3.52 and 3.70

hours per day respectively. Given the fact that women also perform household tasks, it leads to longer working hours for women.

Thakur (1991) carried out a study regarding the nature and pattern of farm female workers' employment in the rural areas of Himachal Pradesh. The study exhibits the differing amount of time spent by women in productive and necessary activities according to the size of the holdings. The percentages of female worker days spent in productive activities were found to be 54.61, 56.93 and 57.42 on the marginal, small and medium size of holdings respectively, which shows that women's involvement in productive activities increases with an increase in the size of the holdings. However, for necessary activities, the percentages of female worker days were found to decrease with an increase in the size of the holdings, the percentages being 44.61, 41.84 and 41.55 for marginal, small and medium size of holdings respectively.

Pande (1996) in his study of women of hill region of Garhwal and Kumaon divisions of Uttarakhand (which was formerly a part of Uttar Pradesh) points out their significant contributions in all agricultural and animal husbandry operations. The hill women in the study area devote about 16.49 hours on an average day for performing different types of activities which have been categorized as outdoor, indoor and leisurely and recreational activities. Maximum time is spent by women in collection of fodder, fuelwood and water (32.8 percent), followed by agriculture and animal husbandry (29.35 percent), indoor household activities (29.08 percent) and leisurely and recreational activities (8.77 percent).

Ishaq and Farooq's (2006) study found that women in the Northern mountains of Pakistan participated actively in different activities such as sowing (except maize), thinning, weeding/hoeing, transportation of inputs to the fields (except for wheat) along with its application, irrigating the fields, harvesting and grading of potato; besides being involved in management of fruit plants i.e. in weeding/hoeing, transportation and application of inputs, irrigating the fields, picking, grading and drying of fruits such as apricots, almonds, walnuts and mulberries, and cracking of walnuts and almonds. Quite often women's time allocation to these tasks is more than men as they participate in all activities related to crop production besides undertaking the normal domestic chores of cooking, looking after children, elderly and infirm, fetching fuel and water, cleaning and maintaining the house etc. The high involvement of women in farming was due to the fact that male members were attending educational institutions or were out for a job. Women however had no role in marketing, and the selling of all the fruits and potatoes was performed by the male member of the household. Women were also actively involved in livestock raising. It was observed that 88% of the

females were involved in cutting fodder for livestock, 64% in grazing livestock in summer and cutting grasses, 68% in cutting and collecting thorny bushes and 100% in feeding and milking the livestock.

Rahman, Karuppaiyan, Kishore and Denzongpa's (2009) study of traditional practices of ginger cultivation in Northeast India mentions that although men and women were found to be doing almost all types of work from land preparation to seed storage, their roles were determined more by family situation than by gender or ethnicity. Women work equally with men in families with fewer men as compared to families with more male members. Ploughing is generally done by men whereas hoeing and digging are done by both men and women. Activities such as sowing, planting, manure extraction and harvesting are done by both men and women, while mulching is done mostly by men with help from women when required. Weeding is however done exclusively by women. In the northeastern state of Sikkim extraction of mother rhizome is done by women but selling is done by men. Women in Mizoram, Meghalaya and Nagaland take part in retail selling of ginger.

Sidh and Basu's (2011) study of women's contribution to household food and economic security in the Garhwal Himalayas in Uttarakhand shows evidence of gendered division of labour within households with men being engaged primarily in paid work and certain specific tasks in fields and within the household such as planting paddy, market-related work, taking children to school, grazing cattle and major repair work at home. Women however shoulder greater responsibilities working in and outside the household and perform most of the activities related to agriculture, animal husbandry, fetching fuel wood, water etc. and other household activities. Since most of women's work is not marketed it does not earn income for the family. The study also observes that even among the women, the hours of work and the nature of work depend on their social status i.e. daughter, daughters-in-law or mothers-in-law with daughters-in-law having to work longer hours than their mothers-in-law and unmarried girls.

Moktan and Mukhopadhey (2012) conducted a study in the hill district of West Bengal to examine the level and extent of women's work in agriculture. Using a sample of 300 farm women the study concluded that the farm women of different farming categories participated in all the identified agricultural activities to a great extent. Women participated mostly in activities such as transplanting and intercultural operations. The other activities performed by marginal and small-medium category farm women were uprooting of seedlings, bringing seedlings to the main field, land preparation, harvesting, seed sowing, processing of farm produce and manure and fertilizer application. The results show that the mean

participation level of women was in more than 10 agricultural activities with a total mean of 10.42 and the total mean annual participation hour was 1366 hours per year.

In recent times, climate change and environmental degradation is one of the most important global challenges affecting mountain ecosystems (FAO, 2011). The loss of forest and water resources as a consequence of the climate change have an adverse impact on the lives of mountain women as they now need to travel longer distances to meet the family's requirements of fuel wood and water. Singh's (2005) study in Kinnaur district of Himachal Pradesh shows that women allocate 80 per cent of their work time as compared to men's 20 percent in the collection of forest-based resources like leaf litter, fuel wood, fodder and non-timber produce especially medicinal herbs and some wild edibles like mushrooms which is strenuous and requires working in inhospitable areas of the forest; whereas men are relatively more engaged in seasonal collection of minor forest produce particularly medicinal herbs. Since women have a rich indigenous knowledge of forest based resources, depletion of forests also results in destruction of relevant knowledge that women have been gathering since generations (cited in Singh, 2005). According to the FAO (2011) climate change and environmental degradation can lead to food deficits, increasing rate of outmigration and trafficking of mountain girls and women to lowland cities (FAO, 2011).

An important issue related to women's participation in agriculture is the issue of ownership of productive resources. A pre requisite for achieving higher and better quality of agricultural production is effective rights for women in agriculture, along with essential inputs and credit support as this will lead to efficient use of resources, besides enabling women to control the use of household income for their own well-being and the well-being of the other members of the household (Kelkar, 2010). According to Maskey (1993), studies in eastern Nepal found that among those attending extension demonstrations only 12% were women, and among those attending agricultural training programs mere 5.1% were women (cited in Gurung and Gurung, 2001). It has also been found that compared to hill and mountain regions, women from the flatlands of Nepal (Terai) had 4.5 times more contact with extension and training services (Shrestha et. al. 1984; Kiff 1991; Maskey 1993 cited in Gurung and Gurung, 2001). As regards the ownership rights of the domestic animals, Dwivedy's (2014) study of female labour in farming sector in Sikkim shows that in contrast to men, women in the study area did not own bullocks, but owned cows and pigs although fewer than men and more of small animals i.e. goats and poultry. Further, only 7% of female sample farmers had ownership of land (Dwivedy, 2014). The lack of ownership of cattle and inequality in access to land and other production resources have led to women's poverty and

socio-economic insecurity (*ibid*). Even within the household the patriarchal norms require that a woman feed her family first, especially the males and children before partaking of her food. This intra household inequality in access to household resources increases the risk of poor nutrition for women and girls with adverse impacts on their health. The ownership of productive resources is an important determinant of the power relations within the household with women owning assets having a higher bargaining power and more say in household decision-making than other women.

2.7. CONCLUSION

The present chapter has provided a review of literature on women's labour force/work participation on crucial related issues. Globally there is underutilization of the labour resources of women with the female participation rates being lower than male participation rates in major regions across the globe. Although a narrowing of gender gaps has been observed in certain regions, women's positions are far from satisfactory with majority of them being employed in informal jobs which are low paid having little or no social security. Women in rural areas in developing countries in particular are involved as unpaid family labour on family farms with little or no visibility in national income statistics. Studies in India express concern about the declining trend in female labour force participation in the recent decade and try to provide explanations for this phenomenon.

The chapter also reviews studies on determinants of women's labour market decisions with primary focus on the relations between women's labour force participation and economic development, education and fertility. Not being determined by a single factor, women's labour market decisions are complex and vary across different regions, class, cultures, and societies etc. making generalisations hard.

Review on time use studies that have been undertaken to capture women's unpaid work points to the larger work burden of women in terms of time spent in different activities, with women expending more time in unpaid non-SNA activities vis-a-vis men who expend more time on paid SNA activities. Where women participate in paid work, studies undertaken in several countries have drawn attention to the gender gaps in wage earnings with women earning only 77 per cent of what men earn. The gender gaps in earnings reveal gender discrimination and occupational segregation of women workers in certain types of activities where the work and skills of women are undervalued.

A review of women's role in agriculture reveals the high involvement of women in agricultural activities although the extent of their involvement varies across different regions, cultures and farming systems. In recent decades with men moving out of agriculture, a trend towards feminization of agriculture is being observed in the rural areas. Studies also point towards the seasonality of women's employment in agriculture which implies that women's participation is largely distress participation. The advent of the Green Revolution or new technology in agriculture had different impacts on men and women's employment. Most of the studies mention that women have been displaced due to the introduction of the new technology as many activities have been mechanized and men have taken over many of the mechanical tasks. Studies on women's work in hill and mountain regions reveal relatively high work participation of women vis-à-vis the lowland areas which has been attributed largely to men's out migration. The studies also reveal their active participation in different farm activities including livestock rearing besides being involved in domestic and household chores. Nevertheless, women face several constraints in access to productive resources as understood from several studies.

From the literature presented in the present chapter it becomes clear that the position of women in society is one of disadvantage and inequality. To achieve gender equality and to make development more inclusive for women gender mainstreaming is an important strategy which has been ignored in development policies. Despite the increasing awareness on gender issues and the realisation of the gender dimension of development, the extent to which gender issues have been included in development policies and translated into practice is still very limited. The problem is even grave in mountain areas which experience deprivation and marginalization in several aspects, and where women's involvement in agriculture and natural resource management is relatively high as compared to other areas. Conscious efforts at all levels and sensitiveness during policy making and implementation are crucial in formulating strategies for effective removal of gender bias. The strategies adopted need to take into account the variability across areas, groups, environments and region specific needs for sustaining development and inclusive growth.

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