

Explaining Falling Female Employment during a High Growth Period

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What explains the decline of the already low female labour force participation rate in India, particularly during a period of rapid economic growth? Women's economic participation is influenced by interrelated factors, each important unto itself. Increased attendance in educational institutions, declining child labour, higher household income levels, structural shift away from agricultural employment, and increased mechanisation of agriculture were some of the factors found to be driving female employment trends. Additionally, it was found that in rural areas the decline in animal husbandry, and in urban areas a fall in international demand for products of labour-intensive industries, have also contributed to the decline as women were the main employees in these sectors. Policy must create an enabling environment for women's economic participation in India.

The sharp decline in the already low rate of female labour force participation rate (LFPR) in India since the mid-2000s, particularly when the economy was experiencing unprecedented economic growth, has raised concerns among policymakers and academicians alike. Cross-country evidence suggests that female labour force participation is high in low-income countries as well as in upper-middle and high-income economies, but relatively low in lower-middle-income countries, creating a u-shaped relationship between national income and female labour force participation (Psacharopoulos and Tzannatos 1989; Schultz 1990, 1991; Pampel and Tanaka 1986; Kottis 1990), which consistently appears in multi-country studies from the 1950s and 1960s through the 1990s (Sinha 1967; Durand 1975; Goldin 1995; Mammen and Paxson 2000; Juhn and Ureta 2003). As women move out from agriculture or low productivity work, it falls, bottoms out and then moves upwards in the u when they acquire education and return to the labour force at more advanced stages of development to participate in remunerative non-agricultural jobs.

The gendered structure of labour markets also contributes to this u (Durand 1975). Several researchers have attributed this relationship to changes in labour market structure (Sinha 1967; Durand 1975; Juhn and Ureta 2003), social norms regarding the nature of women's work (Goldin 1995), and cultural factors such as religion, social mobility, and family structure (Youssef 1974; Semyonow 1980; Horton 1996).

The Indian scenario possibly resembles the same u-pattern with female LFPR/work participation rate (WPR) with female LFPR declining over the period of high economic growth probably to reach its minimum. The real question now is: If India is at the bottom of the trough of the u-shaped curve, when will India turn the corner, that is, when will the female LFPR start to rise, and what policy interventions are needed for this rise to happen?

A rise in women's participation in economic activities is important for instrumental reasons at a macroeconomic level: the realisation of their full economic potential will, first, boost the growth rate, and second, make it more inclusive. The Organisation for Economic Co-operation and Development's (OECD) calculations show that in India raising the participation of women in the labour market with a package of pro-growth and pro-women policies can boost the growth rate by about 2 percentage points over time (OECD 2015). Female employment is crucial not just because it has a positive effect on their own quality of life, but it also significantly improves the living

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standard of the entire household (Subbarao and Raney 1993; Drèze and Sen 1989). Therefore, policies to promote growth of female intensive and women “friendly” sectors or improving the skill level of the women or improving technologies that would help women participate in other sectors are warranted to improve women’s economic participation, for which we need to know the intrinsic reasons behind the low and declining female LFPR.

The objective of the paper is to explain the reasons behind the low level of female LFPR (the structural factors), in comparison with other countries at similar levels of income, as well as its steep fall (trend) in India despite high gross domestic product (GDP) growth, based upon the national employment and unemployment surveys (EUS) conducted by the National Sample Survey Office (NSSO).

Female Work Participation in India and Elsewhere

Between the early 1990s and 2007, world employment grew by around 30%. Though there had been improvements over the period, nevertheless, globally the labour force-to-population ratio for women remained consistently low. For males, it was 77.1% but for females it was 51.1% in 2012 (ILO 2013).

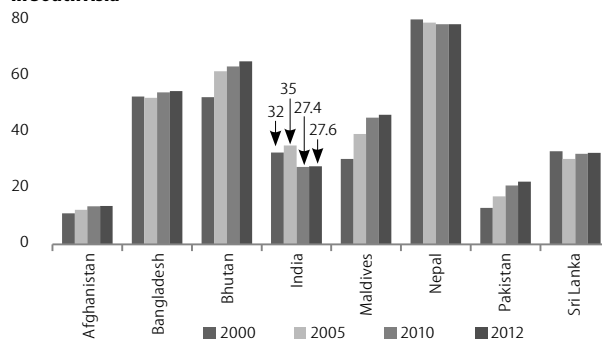
In South Asia, the female LFPR fell from 36.1% in 1992 to 35.8% in 2002, and then declined sharply in the next decade to reach 31.8% in 2012. This trend was driven by the largest country in the region, India. In other regions, the female LFPR was much higher: 52.8% in developed economies and European Union (EU), 50.2% in Central and South-eastern Europe (non-EU) and Commonwealth of Independent States (CIS), and 66.4% in East Asia in 2012 (Table 1, based upon International Labour Organization (ILO) data). The female LFPR in South Asia is the lowest for any region in the world (and exceeds only the rates for the Middle East and North Africa, where income levels may be higher but cultural barriers to women’s labour force participation are very important). Also, the corresponding male LFPR in South Asia had been 84.8% in 1992, 83.3% in 2002 and 81.3% in 2012; the gender gap was 49.5 percentage points in 2012. What is worrying is that the

Table 1: Gender Gaps in LFPR, 1992, 2002 and 2012

Region	Male LFPR			Female LFPR			Gap (Percentage Points)		
	1992	2002	2012	1992	2002	2012	1992	2002	2012
World	80.2	78.1	77.1	52.4	52.1	51.1	27.9	26.1	26
Developed economies and European Union	71.8	69.4	67.5	50.3	51.7	52.8	21.5	17.7	14.7
Central and South-east Europe and Commonwealth of Independent States	74.1	68	70.7	52.6	49.1	50.2	21.5	18.9	20.5
East Asia	84.2	81.4	79.4	71.4	69.1	66.4	12.8	12.4	13
South-east Asia and Pacific	82.6	82.8	81.8	58.4	58.4	58.8	24.2	24.4	23.1
South Asia	84.8	83.3	81.3	36.1	35.8	31.8	48.6	47.5	49.5
Latin America and Caribbean	82.5	80.3	79.5	43.5	49.6	53.6	39	30.7	25.9
Middle East	77.6	73.8	74.3	13.3	17.2	18.7	64.3	56.6	55.5
North Africa	74.4	74.1	74.3	21.8	21.2	24.4	52.6	52.9	49.9
Sub-Saharan Africa	79	76.5	76.3	60.3	63.5	64.6	18.6	13	11.8

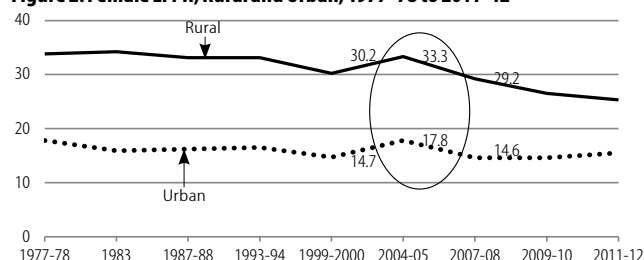
Source: ILO (2013).

Figure 1: Female Employment-to-Population Ratio (15 Years and Above) in South Asia



Source: World Development Indicators 2013.

Figure 2: Female LFPR, Rural and Urban, 1977–78 to 2011–12



Source: National Sample Survey Reports various rounds, India.

gender gap in LFPR in South Asia had increased in the last decade, unlike all other regions where the gap has reduced. This has to be seen in the context that open unemployment is low in South Asia (4.5%) but vulnerable employment (defined as own account workers plus unpaid family workers) is extremely high (at 76% in 2012) among women (ILO 2014).

There are wide differences in female LFPR across different countries in South Asia, with Nepal, Bhutan, and Bangladesh having high female employment-to-population ratios (Figure 1). Nepal and Bhutan are primarily agrarian economies, located in the mountains where there is lower potential for non-agricultural work, and hence they are characterised by high male migration, particularly to neighbouring India. Women must work in agriculture to sustain food output for survival. Bangladesh is also an agrarian low-income economy, with the additional feature that it has specific industries like garments and textiles, where female employment is high. What is notable is that female employment-to-population ratio declines only in India, in all other countries it is either constant or increasing.

Nature and Trends of Female Employment

National trends: Women comprise nearly half of the population in India, but when it comes to participation in the labour market, under a quarter of women do: their LFPR is only 22.5%, as per the EUS conducted by the NSSO. As per its latest estimates, in 2011–12, it is only 25.3% in rural and 15.5% in urban areas (Figure 2).

In India, there has been a consistent decline in female LFPR both in rural and urban areas since the 1970s (Figure 2). However, in this paper we focus primarily on the decline post 2004–05, when the GDP growth rate increased significantly above the growth rate attained in India ever since the economic

reforms that began in 1991. Post 2005, the decline in LFPR is more pronounced, when female employment started declining even in absolute terms, particularly for rural women. During 2005–12, rural female employment declined (Table 2) by 23 million (taking usual principal and subsidiary status together), primarily attributable to a fall in agricultural employment in absolute numbers (by 28 million) (Table 3). Total female employment in urban India declined during 2005–10 (24.5 to 22.8 million). Though it increased by 4.5 million during 2010–12, the female work participation rate witnessed a decline even during this period.

Table 2: Female Employment (million)

	1999–2000	2004–05	2009–10	2011–12
Rural	106.1	125.2	104.5	101.8
Urban	18.5	26.0	22.8	27.3

Source: Authors' estimates from the NSS unit-level data, various rounds.

Table 3: Rural Employment (UPSS) of Women by Sector (million)

Sectors	Status	1999–2000	2004–05	2009–10	2011–12
Agriculture	Own account workers	11.8	13.1	10.8	11.4
	Unpaid family workers	38.9	53.5	37.4	37.3
	Employers	0.4	0.6	0.5	0.3
	Wage workers (regular + casual)	39.4	37.0	34.2	27.3
	Total	90.6 (85)	104.3 (83)	83.0 (79)	76.3 (75)
Manufacturing industry		8.1 (8)	10.5 (8)	7.9 (8)	10.0 (10)
Non-manufacturing industry		1.4 (1)	2.2 (2)	5.7 (6)	7.1 (7)
Services		6.0 (6)	8.2 (7)	8.0 (8)	8.5 (8)
Total		106.1 (100)	125.2 (100)	104.5 (100)	101.8 (100)

(1) Figures in parentheses indicate the share of employment in each sector over total female rural employment in percentage terms.

(2) UPSS = usual principal and subsidiary status of employment.

Source: Authors' estimates from the NSS unit-level data, various rounds.

Rural trends: Figure 2 shows that the only increase in the female LFPR since 1977 occurred over 1999–2000 to 2004–05, which deserves an explanation. In the 60 million increase in total jobs (male and female) during 2000–05, 14.6 million was attributable to a rise in rural female unpaid family workers in the agricultural sector which was certainly a retrogressive development, both for the autonomy of women and for an economy undergoing structural transformation (Mehrotra et al 2014). They joined the labour force because farming households were in distress when agricultural growth had dropped below 2% per annum over 1996 and 2004. Post 2005, it was these family helpers contributing to the family farm who moved out (16.1 million) (Table 3). They basically worked as a reserve army of labour who joined the rural labour force during 1999–2000 to 2004–05, at a time of agricultural distress, when the agricultural growth rate was very low (about 1.7% per annum), compared to the 3.2% per annum since the mid-2000s. Working on the family farm for women is actually part of their double burden and cannot be perceived as a source of either independent income or working outside the home, which are the real sources of empowerment.

Mehrotra et al (2014) show that another retrogressive development occurred during this period (2005–10): not only women in usual working age (15–59 years) joined the agricultural labour force, but 1.65 million women who were over 60 years joined the rural agricultural workforce leading to an increase

of 4 percentage points in the LFPR of such women. This clearly reinforces the point that rural distress was probably compelling these women to join. The aged female workforce, shockingly, increased from 7.26 million in 2005 to 7.32 million in 2010 to 7.36 million in 2012, the reasons for which will become clearer in the next section.

After 2005, with various public initiatives like the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), which started in 2006, as well as the all-weather rural roads programme to connect unconnected areas in rural India, apart from the national rural housing scheme gearing up, wage work in the construction sector in rural India increased. The huge increase in rural female employment in construction (which dominates employment in non-manufacturing industry) shows up in the share of female workforce in this sector rising from 1.8% in 2005 to 5.6% in 2010 in rural areas. The increase in the latter half of the decade is primarily led by construction. The share of manufacturing employment fell from 8.5% to 7.6% during the same period. Though the share of service sector employment increased, it declined marginally in absolute terms.

Post 2010, rural female manufacturing employment somewhat increased, but the quality of employment remains a major concern. The majority of them have joined as self-employed (75% in 2012); self-employment for women increased from 5.7 million in 2009–10 to 7.7 million in 2011–12 (Mehrotra and Sinha forthcoming). But these are petty home-based activities as manufacturing employment primarily increased for those operating from their own dwelling (70% in 2012). In 2011–12, the unpaid family workers in manufacturing accounted for 25% of total rural manufacturing employment (2.5 million workers).

Urban trends: What is notable is that the female LFPR in urban areas is half compared to their rural counterparts. This is a reflection of the fact that household incomes are higher in urban areas, and poverty levels lower.

The majority of urban women work in the services sector (Table 4), mainly in education (25%), retail trade (16%), domestic work (15%) and other service activities like hairdressing, laundry, etc (10%) (Mehrotra and Sinha forthcoming). In fact, the share of services in total urban female employment increased from 50% in 2005 to 55% in 2012.

Table 4: Urban Employment (UPSS) of Women by Sectors (million)

	1999–2000	2004–05	2009–10	2011–12
Agriculture	3.3 (18)	4.7 (18)	3.2 (14)	3.0 (11)
Manufacturing	4.5 (24)	7.4 (28)	6.4 (28)	7.8 (29)
Non-manufacturing	1.0 (5)	1.1 (4)	1.2 (5)	1.4 (5)
Services	9.8 (53)	12.9 (50)	12.1 (53)	15.0 (55)
Total	18.5 (100)	26.0 (100)	22.8 (100)	27.3 (100)

Source: Authors' estimates from the NSS unit-level data, various rounds.

However, manufacturing is not unimportant as an employer for women in urban areas. The relatively poorly educated women in urban areas are mostly self-employed, as own-account workers and unpaid family helpers (Table 5, p 57). Here, women are engaged mainly in manufacturing of wearing apparel (32%) followed by textiles (27%) and tobacco products

(14%). However, regular work is available for more educated women, and as Table 5 shows, that has grown remarkably between 2000 and 2012, with women with regular work nearly doubling in number over that period. This is also a reflection of the growing level of education and opportunities thereof among urban women.¹

Table 5: Female Employment in Manufacturing and Services in Urban Areas by Type of Employment (million)

	Manufacturing				Services			
	1999–2000	2004–05	2009–10	2011–12	1999–2000	2004–05	2009–10	2011–12
Self-employed								
Own account workers	1.6	3.0	2.7	3.7	2.3	2.4	2.1	2.7
Unpaid family helpers	1.3	2.1	1.5	1.7	1.4	1.9	1.3	1.7
Wage work								
Regular	1.0	1.4	1.1	1.5	5.0	7.7	7.6	9.8
Casual	0.5	0.9	1.0	0.9	1.1	0.9	1.0	0.9
Total	4.5	7.4	6.4	7.8	9.8	12.9	12.1	15.0

Source: Authors' estimates from the NSS unit-level data, various rounds.

Building on the national-level data analysis, the next section attempts to understand the underlying reasons behind the existing low and falling rate of female labour force participation.

Reasons for Low and Declining Female Participation

Economic growth increases employment opportunities but it cannot on its own reduce gendered inequalities. Differences in time-use at home between men and women, differences in education and skill level, social and cultural restrictions, sectoral and occupational segregation, and male migration, access to productive inputs, all lead to inequalities in decent work participation. The low and further declining female LFPR in India is a combination of various factors.

Education of over-15-year olds: There was a significant increase in enrolment in India, higher for girls both in the age group below 15 years, as well as 15–19 years, after 2005. Since 15 years is the legal age for working, their participation in school had a dramatic impact on female LFPR. Table 6 shows that 15–24-year-old girls in education rose more than twofold, from 17.6 million to 40 million over a 12-year period. There was a similar increase for 20–24-year-old youth: from 14.9% for boys and 7.6% for girls in 2004–05 to 22.5% and 12.8% in 2009–10 (Planning Commission 2012).

This dramatic change reflects a silent revolution that has swept across India. It is driven by the fact that enrolment in secondary schooling increased sharply for girls, as enrolment rates for girls had risen at elementary school level. In fact, there is complete gender parity in female and male enrolment at secondary enrolment (by 2014–15, according to District Information System for Education or DISE data), which is rare in developing countries. State governments across the country

have been incentivising girls to remain in school when they finish the compulsory eight years of schooling (in accordance with the Right of Children to Free and Compulsory Education Act, 2009), by giving them bicycles to travel to the nearest secondary school. This is for the state a more cost-effective option than opening more and more secondary schools in rural areas. With the very significant increase in the density of good rural roads, the bicycle option has opened up new opportunities never available hitherto for girls across India.

Demand for schooling for both boys and girls has also risen with rising per capita incomes, as India experienced the fastest GDP growth ever in its history (8.4% per annum between 2003–04 and 2011–12). For the first time in India since 2004–05, the absolute number of poor fell. Earlier, the incidence of poverty had been falling, but between 2004–05 and 2011–12 the absolute number of poor fell by 138 million, an achievement of staggering proportions. One factor driving female LFPR down the U-shape across countries as per capita incomes rise, is increasing enrolment of girls in schools. In other words, there is a U-shaped relationship of female participation with education and household income.

The marginal effect of education on LFPR, as estimated by Klasen and Pieters (2013) for urban India for 1987 and 2009, points to another dimension. It shows that the marriage market returns to education are lower in 2009 than in 1987, with essentially flat returns up to middle school and then high returns to secondary and graduate education. Thus in 2009, marriage prospects for a woman are better with higher education level than what was in 1987. Now it is at least secondary education as compared to primary or middle school in 1989, thus underlining the importance of growing school enrolment in the decline in female LFPR in urban India during 1987 to 2009 in an indirect way.

Declining child labour: An important reason for female LFPR falling is that child labour (that is, among girls in the age group 6–14 years) is falling. The number of male and female child labourers fell consistently from 10.6 million in 1999–2000 to 3.7 million in 2011–12 (Table 7), wherein the share of girls also declined. This is consistent with the fact that participation in education is increasing, not just for boys, but especially for girls.²

That there was a dramatic fall in the absolute number of child labourers is in itself quite impressive. And taken together with the fact that over this period the total child population was increasing, the achievement is particularly notable. This was possibly on account of significant government programmes focused on expansion of school access. The net enrolment rate at primary level had risen to 97% by 2007, and there was complete gender parity at primary level enrolment.

Table 6: Number of Females Attending Educational Institutions and Therefore Not in Labour Force (million)

Age Groups	Years 1999–2000	2004–05	2009–10	2011–12
Below 15	79.4	94.8	101.9	109.4
15 to 24	17.6	22.1	34.0	40.0
25 to 59	0.3	0.3	0.7	0.7
Total	97.3	117.3	136.5	150.2

Source: Authors' estimates from the NSS unit-level data, various rounds.

Table 7: Size of Workforce (Male + Female) by Age Cohort (million)

Age Groups	Years 1999–2000	2004–05	2009–10	2011–12
Below 15	10.6 (46.7)	8.5	5.0	3.7 (41.7)
15 to 24	82.9	95.0	79.2	76.5
25 to 59	279.0	324.7	341.4	356.9
60 and above	27.0	30.9	34.6	37.1

Figures in parentheses indicate the share of girls (<15 years) in the total below 15 workforce.

Source: Authors' estimates from the NSS unit-level data, various rounds.

By 2012, upper primary level (grades 6–8) gross enrolment rate had also risen to 84%.

Changing domestic responsibilities: The decline in LFPR among women is the highest in the age cohort 30–34 years followed by 35–39 years, thus indicating some reasons other than expansion of women's education to explain women's withdrawal (Sinha 2014). Domestic duties and care work, and the ideology of the marital household govern the entry to, and withdrawal of women from the labour force to a large extent. Particularly in rural areas the share of rural women engaged in domestic duties increased from 51.8% in 2005 to 59.7% in 2012, thus signifying increased burden of household activities, care work, economic activities for household consumption and non-System of National Accounts (SNA)/non-economic work.

As older girls entered and remained in secondary school, the task of younger sibling care performed by the older girls hitherto now had to be performed by these adult women. For rural females of aged 15 years and above engaged in domestic duties, the primary reason to carry out such activities and not participate in the labour market is the absence of any other household member to help them in household chores, child-care and other domestic duties (Table 8). The role of direct social and religious constraints on women's work participation are lessening, reflecting the fact that society is evolving, but the social and household dynamics which regulate the gender division of labour is a source of pressure on women which is increasing their unpaid work.

Table 8: Women in Domestic Duties and Reasons Thereof

	Rural		Urban	
	2004–05	2011–12	2004–05	2011–12
Share of females engaged in domestic duties (age 15-year and above) (%)	51.8	59.7	63.1	63.7
Reasons to carry out domestic duties (%)				
No other member to carry out the domestic duties	55	60.1	58.2	64.1
Cannot afford hired help	7.1	8.7	7.5	8.8
Social or religious constraints	20.3	15.8	18.7	14.2
Others	17.5	15.5	15.6	12.9
Total	100	100	100	100
Specified activities				
Maintenance of kitchen garden	15.2	23.3	3.2	7.8

Source: NSS reports, various rounds.

With greater nuclearisation of families, there is growing lack of support from other family members; thus women are constrained from joining the labour force even if they have the necessary qualification. And India's gender chore gap, the difference between the amount of housework done by women and men, is the largest of any country for which data is available (Hausmann et al 2012), indicating the huge burden of unpaid work solely on women in India. OECD (2012) estimates reveal that in India, women spend 351.9 minutes per day on unpaid work while men spend only 51.8 minutes. In contrast, in Norway (men: 210 minutes/women: 180 minutes), Denmark (242/186 minutes), United States (248/161 minutes), Belgium (245/151 minutes), and Finland (232/159 minutes), the average

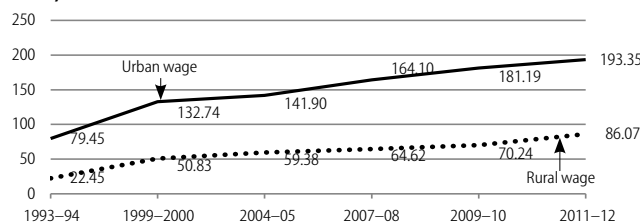
minutes per day spent by women are much less and that of men are much more.

The women, not counted in the labour force, nevertheless, carry out specified activities like maintenance of kitchen garden, orchards, etc, work on household poultry, dairy, etc, processing of primary products, collecting firewood, cattle feed, etc, preparing cow-dung cakes for fuel, getting water from outside, and sewing and tailoring. The system is such that working women have to wedge their work in with the responsibilities at home for domestic duties and extended SNA activities.

The total fertility rate (TFR) in rural India has declined significantly in the past two or three decades, falling from 3.7 in 1993–94 to 3.1 in 2000 to 2.6 in 2011–2012, which eventually would tend to be supportive to increase female participation in the labour market. And therefore, there would be a fall in the unpaid workers. But the decline would be for a different set of females. It is not really the adult women, but the young girls, who are entering education at present who would be joining the labour force in the near future. The gross enrolment ratio (GER) for girls has increased at both the secondary and higher secondary level. A 17% increase in GER at secondary level in five years (from 62% in 2010 to 79% in 2015) is a phenomenal achievement and explains majorly the decline in the number of unpaid workers as well as the female workforce. According to the Census 2011, the fertility rate is declining faster for Muslims along with improvement in sex ratio. Complementing it, the rise in the percentage of girls' participation at secondary and higher secondary level, across all communities (Scheduled Castes, Scheduled Tribes, Other Backward Classes, and Muslims), would be contributing to the labour force in the coming five to 10 years.

Increase in household income: Female work participation in the Indian context is clearly seen as responsive to economic stimuli, better described as the "income effect." With the rise of commercial agriculture and of household income (and fall in poverty rate), the opportunity cost of domestic activities for women increases while that of paid labour of women decreases. Hence, they tend to withdraw from the labour force.

One source of rising rural household income increase has been the consistent rise in government's minimum support price (MSP) (for grains procured by the government for the public distribution system) after 2000. Rural wages had been stagnating over 1999–2000 to 2004–05. However, after that they began to rise. The rise in household income has been partly driven by the availability of public works employment where women and men had been offered equal wages. Half of all workers in MGNREGA work are women and many non-workers have also joined. However, there is a caveat. Although MGNREGA work would have increased women's labour force participation slightly, there was never more than 25 person days in a year that women worked in any year. But it has certainly led to a rise in women's wages and, therefore, has contributed to enhanced household income, especially in rural areas. But it is the broader effect of MGNREGA wages and rising MSP for grain that contributed to the rise in real wages post-2005.

Figure 3: Trends of Real Wage Rates (at 2001–02 Prices) in Rural and Urban India, 1993–94 to 2011–12

Source: Authors' estimates based on NSSO unit-level data, various rounds.

The second half of the 2000s saw a remarkable and historic shift in rural wages. Rural wages begun to rise since 2006–07 (Figure 3), partly due to the spillover effect of MGNREGA on the open market rural wage rate, and the rising demand for low-skilled labour due to the construction boom in general, on the one hand, and of labour, partly due to higher participation in education (Thomas 2012), male migration to urban construction sites; (Mehrotra et al 2014), and male participation in MGNREGA work, all of which then again led the farmers to start using machines.³ Rural women who were mostly in agriculture withdrew from the labour force given the rise in household income and availability of MGNREGA work in the villages.⁴

The combined effect of this rise in non-agricultural employment along with the secular increase in wage rates (rural and urban), was that the incidence of poverty fell sharply after 2004–05 and the absolute numbers of the poor fell in India (Mehrotra et al 2014). The rise in income at the bottom of the income distribution played a major role in female withdrawal from the labour force in two ways. One is the lessening of financial necessity and the other, which is very significant in the Indian context, that women staying at home are often considered to reflect a rise in a family's social status.

Mechanisation in agriculture: Shortage of labour in the agricultural sector (as males moved out for higher wage construction work), rise in household income and technological change together led to mechanisation in this sector. Women perform more manual work than men in agriculture, with 54% of women performing manual activities (weeding, harvesting, etc) in cultivation in the agricultural sector as against 48% of men in 2011–12. The process of mechanisation reduces the demand for labour, affecting the female workforce. Now there is an increasing use of seed drills, fertiliser drills for sowing and planting, power weeders for weeding, harvesters and threshers, which were occupations traditionally done by women. These technologies are affordable, often manufactured by locals, and therefore, their use has become widespread. Men largely appropriate the control and use of technology. Farm mechanisation, therefore, results in segregation with men performing tasks involving the use of technology, replacing a number of activities earlier performed by women, particularly displacing the labour of women in subsistence and marginal households (Mallaiah 2009).

Decline in household-level animal farming: Traditionally in Indian agriculture, the activities allied to agriculture have

been carried out by women: raising cattle, buffaloes, goats, sheep; production of milk and other dairy products; raising of poultry; production of eggs and operation of poultry hatcheries and other animal farming were activities done mainly by the women in the family. The number of rural women engaged in these activities declined absolutely by half, from 16.5 million to 8.9 million in seven years (Table 9). With a decline in common property resources (that results in reduction in grazing land) and growing commercialisation in these sectors, it has become difficult for rural women in small and marginal farmer households to sustain these activities.

Table 9: Rural Female Employment by Type of Agricultural Activities (million)

	2004–05	2011–12
Growing of crops: cereals, rice, vegetables, fruits, beverage crops, etc; plant propagation	86.36	64.78
Animal production (raising cattle, buffaloes, goats, poultry, etc), includes production of milk, eggs	16.52	8.99
Others (include mixed farming, support services, forestry, fishing)	1.43	2.53
Total agricultural and allied activities	104.3	76.3

Source: Authors' estimates from the NSSO unit-level data, various rounds.

However, it is perfectly possible that employment in dairying activities may increase in rural areas, as dairy production has grown, as manifested in the fact that India has become the world's largest producer of milk. The problem is that much of this milk production is likely to be conducted by medium and large farmers, as well as large dairy farmers. Wage employment in such activities may grow in the future, though it may not necessarily for women in rural areas.

Fall in Demand for Labour-intensive Products

After the global economic crisis began in 2008, both output and employment in India was adversely impacted, in both tradable and non-tradable goods sector.⁵ Export growth of manufactured commodities slowed in 2008–09 and then turned negative in 2009–10. Exports of textile and textile products, particularly yarn, fabrics, made-ups (both cotton and silk), ready-made garments, leather products, gems and jewellery, handicrafts registered negative growth during 2008–09 and 2009–10 (we estimated from RBI 2014). Agro-products like cashew, oil meals, processed food experienced a negative export growth. Sectors producing such commodities have a concentration of female workers. Fall in demand for such products have an impact on the workforce, particularly the informal contract workers, piece-rated wage workers and unpaid family workers, who are largely women. Also, as in any crisis, women faced increased competition from men for scarce jobs. About 27.9% of women workers is estimated to have lost jobs of the total women workers in 2003–04, as a result of the crisis through the channel of trade contraction (Kucera et al 2012).

Structural factors: Further, there are some structural factors contributing to low female LFPR. A study by Lahoti and Swaminathan (2013) observes that the composition of growth had been a crucial factor in determining the type of female

employment in India. Here it is mainly the service sector that drove the economic growth and this sector requires high skill that a majority of women do not possess.

Moreover, in general, in the Indian context there are several structural factors that remain barriers to women's greater economic participation. Informal piece rated nature of work, home-based work, which is high among women hardly leaves no scope for bargaining, transparency, social security benefits or even job security. Though female entrepreneurship has been rising in both manufacturing and services over the past decade, it is lower than its stage of development would suggest and most of these entrepreneurs work in the subsistence sector as street vendors or in other marginal activities for lack of wage employment (Ghani et al 2012).

Finally, women face various types of challenges in the workplace, taking different forms, patriarchal hierarchy (as the bosses are mainly male), sexual harassment, lack of infrastructure at workplace (absence of female toilet) rendering them vulnerable to harassment.⁶ Such vulnerability often acts as a demotivating factor for them. We would, however, note that all these structural factors that we have cited in this sub-section have always existed, and cannot be used to explain the fall in female LFPR; all it can do is tell us why female LFPR is low.

Measurement Issues

Kapsos et al (2014) show that measurement imprecision appears to have played a role in changes in female participation estimates, accounting for 4.1 percentage points of the decline during 2005 to 2010. Hirway (2012) argues that a large part of the female "missing labour force" is not really missing or withdrawing, but they are in sectors that are "difficult to measure" and could not demarcate between unpaid family work and specified activities. Majority of the specified activities are not included in the Indian SNA despite the fact they are included under United Nations-SNA, and those considered economic among the non-marketed activities are lumped into "out of the labour force," signifying negligible participation. As female work participation rate shot up abnormally high in 2005, it is not unlikely that some of the activities performed by women were captured as contributing family work, which in the subsequent rounds were captured in domestic duties or those engaged in specified activities and therefore went "out of the labour force," despite the fact that their work did not reduce. Time-use surveys can be used to supplement and complement the labour force surveys, to get an improved estimate and a better understanding of the female workers, both paid and unpaid.

Conclusions and Policy Implications

The paper reveals the significance of varied social, cultural, and economic constraints behind low and declining female participation in the labour force in India, even as the economy is witnessing robust growth and is aiming for higher growth rate (and has become the fastest growing large economy in the world from 2015). Given such constraints, decisive macro-economic reforms to create employment opportunities through

an improved policy environment, especially to propel non-farm employment, particularly in rural areas are needed to pull women up along the upward slope of the "U."

A recent estimate projecting the future female labour force indicates that at the current LFPR, female labour force is likely to increase from 129 million in 2011–12 to 140.9 million in 2016–17 and to 148.3 million in 2019–20 (ASSOCHAM 2014). India's youth bulge—the demographic dividend—is now the sharpest with declining "dependency ratio" (the share of children 0–14 years and the elderly 65–100 years), and India has a much younger population than United States, Europe, Japan, China and many other countries. The International Monetary Fund (IMF) in 2011 estimated that this dividend has the potential to add 2 percentage points per annum to India's per capita GDP growth over the next two decades. As fertility is falling faster, the time spent by women in bearing and rearing children would then fall. Women could then be expected to join the labour force in large numbers. And as the education level of females is increasing, there would be an expectation for more high value added jobs. If this dividend is to be harnessed, an educated female workforce would actually be a bonus.

However, with an extremely low and declining female LFPR, the dividend can be a negative one. The real dependency ratios (number of people actually employed per retiree) would continue to fall if women are not included in the labour, which can then negatively affect the potential economic growth.

More females are opting for secondary school education. To improve employability of females in more productive and better remunerative jobs, the education system needs to be reformed at this juncture bringing in improved technical education. Vocational education and training, which was limited to higher secondary level for the last 30 odd years, had been extended to secondary level (9th and 10th standard) only after the National Skills Qualifications Framework was notified in 2013, which then rolled out in 2,992 secondary schools (by March 2016). It is essential to spread to all schools, taking note of the upcoming trades and linking the curriculum with the needs of industry.

There are lags in the training institutes with very few courses in services (which is where women prefer to work). They offer gender-stereotyped courses (which practically do not have any demand in the economy). The institutes also lack hostels for women, have very few female teachers, are mainly urban-located which disincentivises rural women from pursuing vocational education (Mehrotra 2014). Thus, skill development measures, especially for girls, need to be promoted to improve employability and thus increase the transition to non-agricultural employment.

Along with skill training in upcoming trades, there is a need to follow up with institutional support for self-employed women for marketing their product, initial finance on easy terms, working finance facilities, infrastructural and macro-policy support.

With increased mechanisation in agriculture, women have largely stepped back with men taking over. With adequate skill training, women can also handle the specialised machines.

Along with these supply-side initiatives, if decent and productive employment in the non-agricultural sector is generated then that will absorb the girls finishing school into the labour force. More diversified employment opportunities should be created, particularly in the villages or nearby towns, so that women can commute easily on a daily basis, which requires greater investment in the infrastructure of small towns and cities, as that will attract employers. It also requires a renewed focus on cluster development (and not just on Micro Units Development and Refinance Agency-type credit-giving institutions) so that these clusters create new jobs in the vicinity of where girls are studying.

Increased investment in sectors like health and education, where a significant share of women work, can generate more employment in these sectors. Provision of basic services will also reduce their burden, releasing them to participate in the labour market. A major factor restraining female participation is the increasing burden of domestic responsibilities and care work. Childcare facilities are needed throughout the country. Hostel/housing facilities for single working women, and better public transport in metros or tier-II/tier-III cities can encourage women to work.

A significant share of women in India work as unpaid family workers, who neither own the land/enterprise nor do they receive any monetary compensation for their work. They are therefore devoid of any rights, credit, extension services, any profits accruing from the land, decision-making or any relief packages in case of any distress. They merely act as a reserve army of labour who comes in and goes out, as and when needed. This does not really engage them in the labour force in the truest sense. While women in India have the legal right to own land, according to the Hindu Succession (Amendment) Act, 2005, very few do have it in reality. For those women who do own land, ownership rarely translates into control of the land, decision-making or of the assets flowing from the land. The state has a responsibility to improve the actual implementation of this act. Access to productive inputs and savings avenues can empower the women economically.

In India, there is high dependence on family labour and limitations to deploying mechanised milching systems, as

many farmers engaged in dairy sector are small and marginal (even though their numbers have been falling as we noted), with an average herd size of one to two milch animals. With increased demand for milk, processed milk and milk derivatives, the National Dairy Development Board launched the National Dairy Plan in 2012 to focus on means to grow production and provide producers with greater access to the organised milk processing sector, thus strengthening the direct supply channel and eliminating the intermediaries, both of which will ensure better compensation to small and medium milk producers.

Cooperative sector plays a vital role in this sector; but newer concepts on herd aggregation, collective animal management and mechanisation, are at a very nascent stage in India. Policies to support the cooperatives and establish vertically integrated dairy chains (village level supply chain + high end processing capacities), can help to establish last-mile linkages and complement the dairy development initiatives of the cooperatives and thereby lead to a larger share of the organised sector in milk processing. Activities allied to agriculture, like dairying and poultry, along with technology penetration, financing, dairy clinic, insurance, etc, should be promoted and supported to make the sector more profitable, scalable, and help women to link with the market, so that the financial gains accrue to these women. These are essential to help women to transcend from unpaid family workers to paid workers or entrepreneurs.

Also, agro-based manufacturing needs to be promoted and bring women into these activities. Further, research is also needed to understand the forces that could increase female labour force participation as women's education levels increase. Finally, better quality control in employment statistics is required to prevent mismeasurement of women's labour force participation.

To conclude, India is in an advantageous position globally, given its demographic dividend and positive investment climate. Appropriate macroeconomic and social policies are needed to realise the full economic potential of women, which can then harness the demographic dividend, empower women, raise economic growth rate and at the same time ensure a more inclusive growth process.

NOTES

- 1 It may be worth dwelling on why female employment fell in absolute terms in manufacturing (and even in services slightly) between 2005 and 2010. This was part of a larger trend, which affected even men as the capital intensity of manufacturing employment rose as urban wages rose sharply, resulting in falling employment in manufacturing for both men and women. Moreover, the global economic crisis impacted jobs overall in manufacturing particularly. Services employment grew among men, but at a much slower pace than in the first half of the decade.
- 2 However, there are various forms of child labour like child domestic labour, children in home-based export oriented industries, child trafficking and migration, child bonded labour and child labour in the informal economy, which needs specific government interventions. A new bill to ban employment of children below

14 years in any occupation has been placed in Parliament, bringing the law in line with the Right to Children to Free and Compulsory Education Act, 2009.

- 3 Wages also rose because the Government of India raised the minimum support prices of cereals (rice and wheat) purchased by the Food Corporation of India from farmers.
- 4 Eapen (2004) showed that voluntary decline in the female work participation is associated with improvement in economic well-being in Kerala. The decline in female employment at the national level, post 2005 is, to some extent, attributed to increasing wages and therefore rise in household income—in a strange form of “a backward bending labor supply curve,” doubly reinforced by the steep reduction in poverty rate in India, more remarkable in rural areas.
- 5 Kucera et al (2012) estimates an average 18% decline in employment in the non-tradable

goods sector through rippled effects of trade contraction.

- 6 Also, there were some occupations like agarbatti making, diamond polishing which involved considerable health hazards, thereby reducing working lifespan of women (Saha et al forthcoming).

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