

Explaining Employment Trends in the Indian Economy: 1993-94 to 2011-12

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This paper explores employment trends in India since the mid-1990s based on study of various rounds of National Sample Survey unit level data. The major findings are of a structural transformation with an absolute fall in agricultural employment and a rise in non-agricultural employment, increasing participation in education, decline in child labour, mechanisation of agriculture and rising living standards in rural areas due to a growth in real wages which led to a decline in workforce, most of which was of women leaving the workforce. A fall in demand for manufacturing exports and increasing capital intensity also resulted in a decline in manufacturing employment during 2004-05 – 2009-10. The paper estimates that approximately 17 million jobs per annum need to be created in non-agriculture during 2012-17. Based on these estimates, the paper makes policy suggestions to increase non-agricultural employment in India.

Inclusive growth, a goal of the Eleventh and the Twelfth Five-Year Plans (2007-17), will not be achieved without generating more non-agricultural employment. This paper argues that since 2004-05 the structural shifts in employment, significant increases in rural wages, increase in per capita consumption expenditure and therefore a sharp decline in absolute numbers of the poor as demonstrated by the National Sample Surveys (NSS) of 2009-10 and 2011-12 have initiated an underlying process that has promoted inclusive growth. Post 2004-05, when a revised (Tendulkar) poverty line raised the absolute and relative poverty estimates, the absolute number of poor fell from 407 million in 2004-05 to 356 million in 2009-10¹ and further to 269 million in 2011 (a total fall of 138 million).² What is of concern is that there is a diverging trend between the structure of output and the structure of employment in the last decade, particularly when growth of the gross domestic product (GDP) has increased significantly. This paper attempts to explain this and other trends in employment in the Indian economy over the past two decades.

This paper is organised as follows. Section 1 describes the trends in employment and its structure (i.e., its sectoral composition and the sub-sectors that drove the trends) since the start of the millennium. Section 2 attempts to explain the employment trends by discussing who gained and who lost in the labour market: men or women; the self-employed, casual or regular workers; the organised or the unorganised segment workers, especially in the non-agricultural sectors; and finally, which types of enterprises saw a rise in employment in terms of size. Section 3 goes on to analyse the underlying reasons for the overall employment trends and also those by sector. Section 4 concludes the paper by presenting the challenge of non-agricultural job creation over the next five years.

1 Employment Trends in India, 1993-94 to 2011-12

The labour force increased from 381 million in 1993-94 to 485 million in 2011-12, according to principal and subsidiary status taken together or on an average by 5.5 million per annum (Table 1, p 50). However, the labour force increased by 61 million between 1999-2000 and 2004-05 and this led everyone to believe that every year 12 million people will join the labour force. On the other hand, between 2004-05 and 2009-10, the labour force increased by only two million, and between 2009-10 and 2011-12 it rose by 14 million. Between 2004-05 and 2011-12, merely two million people joined the labour force per annum (Table 1). The slowdown in the pace of growth of

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the labour force is attributed to changes in the demographic profile of the young population, rising enrolments in elementary and secondary schooling due to the efforts of Sarva Shiksha Abhiyan (SSA) and Right to Education (RTE), declining child

Table 1: Size of Labour Force, Workforce (by Sectors), the Unemployed and Employment Elasticity of Output in India (1993-94 – 2011-12)

Workforce, Labour Force and Unemployed	Absolute Number (in million)					Employment Elasticity of Output			
	1993-94	1999-2000	2004-05	2009-10	2011-12	1999-2000	2004-05	2009-10	2011-12
Total employment by sectors									
Agriculture	241.5	246.6	268.6	244.9	231.9	0.12	1.09	-0.67	-0.53
Manufacturing	38.9	42.8	53.9	50.7	59.8	0.27	0.81	-0.17	1.35
Non-manufacturing	15.8	20.4	29.4	48.3	55.3	0.74	1.03	1.26	1.07
Services	77.7	89.8	107.3	116.3	127.3	0.35	0.55	0.20	0.55
Total workforce	374.0	399.5	459.1	460.2	474.2	0.20	0.53	0.01	0.21
Total labour force									
	381.2	408.5	469.9	469.9	484.8				
Unemployed (open)									
	7.2	9.0	10.8	9.6	10.6				
LFPR female (age 15 to 59)									
	45.2	41.7	45.4	34.5	33.1				
LFPR male (age 15 to 59)									
	88.0	86.6	87.1	83.7	82.7				

The numbers in the table are based on the principal + subsidiary status employment; LFPR: Labour force participation rate. Source: Authors' estimates based on CSO and NSS unit level data.

labour, mechanisation in agriculture, withdrawal of women and their increasing participation in household activities – all issues we will discuss later.

Structural Shift in Employment Beginning 2004-05

Total employment increased by 25.5 million between 1993-94 and 1999-2000, of which 5.1 million was in agriculture. Over the five-year period, 1999-2000 to 2004-05, there was an additional 22 million rise in agriculture – clearly a retrograde development, especially at a time when agricultural output was growing slowly. In other words, there was no structural shift taking place with workers moving out of agriculture until 2004-05, underlining low productivity in agriculture as a whole, and in the economy.

Post 2004-05, for the first time in India's post-Independence economic history, in the five-year period, 2004-05 to 2009-10, as many as 23.7 million of India's agricultural workforce abandoned agriculture, or nearly 10% of the total workforce in agriculture (Table 1). In fact, non-agricultural employment grew by 25 million, which is how total employment grew by only 1.1 million. Between 2009-10 and 2011-12, non-agricultural employment increased sharply – a 27 million increase in absolute terms, while at the same time the numbers in agriculture fell by 13 million in a matter of two years. This is a historically unprecedented development in India's economic history.

This structural shift, evident from the employment elasticity (Table 1) of output by major economic sectors, is precisely the kind of progressive structural change in employment that should accompany a structural change in output between the primary, secondary and tertiary sectors in any developing economy. The opposite had been occurring between 1993-94 and 2004-05.

Non-agricultural jobs grew by 7.5 million per annum on an average during 1999-2000 – 2004-05, but this growth in employment was not rapid enough to absorb the 12 million that were joining the labour force per annum during that period. Between 2004-05 and 2011-12 as well the number of non-agricultural jobs grew by 7.5 million per annum (Table 1). In the recent

two-year period (2009-10 to 2011-12), employment in manufacturing and non-manufacturing taken together grew by 16.1 million in a matter of two years vis-à-vis an increment of 15.7 million over a five-year period (during 2004-05 – 2009-10).

Employment growth rate in the manufacturing sector at 8.6% between 2009-10 and 2011-12 surpasses the employment growth rate in all other sectors. Employment in the service sector too has witnessed a sharp increase with 11 million more jobs being created post 2009-10, much higher than the nine million increase during the five years to 2009-10. The real question for the future is: can the Indian economy's expected growth be employment-intensive enough to generate employment in non-agriculture to absorb both those entering the labour force as well as those leaving agriculture for non-agricultural jobs? We will return to this question later in the paper.

Sub-Sectors Driving Employment Trends

The shift in the employment structure in the economy away from agriculture (which has hastened within the last decade) is very significant with sharp changes within sub-sectors. The increase in non-agricultural employment is due to the expansion of labour-intensive sub-sectors (Table 2). Employment in construction increased by 8.5 million between 1999-2000 and

Table 2: Absolute Employment (PS+SS) in Manufacturing, Non-manufacturing and Service Sectors in India (2000 to 2011-12)

Sub-sectors	Absolute Volume of Employment (in million)			
	1999-2000	2004-05	2009-10	2011-12
Food products and beverages	5.8	5.5	5.5	6.4
Tobacco products	4.4	4.7	4.1	4.9
Textiles	7.6	9.7	8.4	9.2
Wearing apparel	2.5	7.2	7.3	9.6
Leather products	1	1.3	0.9	1.3
Wood and wood products	4.5	5.2	3.6	3.9
Paper and printing, etc	1.2	1.5	1.6	1.1
Rubber and petroleum products	1.1	0.9	0.8	1.3
Chemical products	1.7	2	1.7	2
Non-metallic mineral products	3.4	4.5	4.3	5
Machinery and metal products	5.8	6	6.6	6.9
Transport equipments	0.6	1	1.5	1.5
Furniture manufacturing	3.1	4.4	4.3	6.6
Sub-total manufacturing	42.8	53.9	50.7	59.8
Mining and quarrying	2.2	2.6	3	2.6
Electricity, gas and water supply	1.1	1.2	1.3	2.5
Construction	17.1	25.6	44.1	50.3
Sub-total non-manufacturing	20.4	29.4	48.3	55.3
Trade	34.8	41.2	43.5	44.2
Hotels and restaurants	4.4	5.8	6.1	7.8
Transport and communication	14	17.6	20	22.9
Banking and insurance	2.1	2.9	3.8	4.3
Real estate, renting business	2.5	4.3	5.8	6.7
Public admin and defence	9.9	8.3	9.5	7.9
Education	8.2	11.1	11.8	14.1
Health	2.7	3.5	3.6	4.4
Other services	11.3	12.7	12.2	15.1
Sub-total services	89.8	107.3	116.3	127.3

Source: Authors' estimates based on NSS unit level data.

2004-05, but by over twice as much in the next five years (18.5 million); it increased by a further six million in two years (2009-10 to 2011-12). Thus, while total employment in construction stood at 26 million in 2004-05, it had actually doubled to 52 million by 2011-12. It has been a factor pulling workers away from agriculture in large numbers.

Within the manufacturing sector, wearing apparel, textiles, furniture, non-metallic mineral products and wood products, the labour-intensive sectors are the ones that largely account for the fluctuations in employment in this sector. However, the share of output in these sectors in total manufacturing value added has been stagnant. This implies that it is the low-productivity small-scale enterprises that are driving employment in these sectors. Small-scale enterprises produce low-end products which are consumed by the lower income quintiles of the population. There is a remarkable change in the consumption basket with a rising share in clothing and bedding, footwear and miscellaneous (which includes education and medical care) in a total of 12 commodities among the bottom four fractiles.³

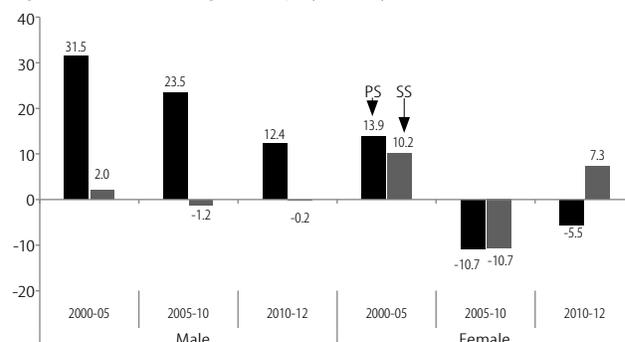
Every sub-sector within services has seen an increase in employment over the period 1999-2000 to 2011-12 (except public administration and defence). Employment increased in education, health, real estate, and business and telecommunications. Tele-density, which is an important indicator of telecom penetration, increased from 18.2% in March 2007 to 73.3% as on 31 December 2012, with urban teledensity at 149.5% and rural at 39.9% (Ministry of Finance 2013), and hence has been an important source of job growth.

2 Who Gained and Lost Jobs?

The Gender Dimension: India, like other south Asian countries,⁴ has a low female labour force participation rate (LFPR), which is clearly one indicator of the low level of autonomy enjoyed by women in society at large, and of their capability deprivation (Nussbaum 2000). However, in the first part of the decade (the 2000s), employment of women rose significantly (Figure 1) – 14 million by principal status and 10 million by subsidiary status. In fact, the 22 million rise in agricultural employment during this period comprised 14 million rural women. However, this increase in employment in agriculture cannot be seen as a progressive development, either for the autonomy of women or from the perspective of structural change in employment in the economy as a whole. Working on the family farm for women is 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 for women.

In complete contrast to the first half of the decade, during 2004-05 – 2009-10 there was an absolute withdrawal of around 21 million women workers (19.8 million from rural areas), thus contributing significantly to the decline in the agricultural and the aggregate workforce in this period. The fall in women workers in rural India continued even between 2009-10 and 2011-12.⁵ Various factors have contributed

Figure 1: Absolute Changes in Employment by Gender (million)



PS= Principal status; SS= subsidiary status.

Source: Authors' estimates based on NSS, various rounds.

to this decline. From the demand side, there was shrinkage in labour demand mainly due to increasing rural wages, and growing mechanisation in agriculture (Himanshu 2011; Thomas 2012; World Bank 2012). In addition, in urban areas there was growing capital intensity in the manufacturing sector (an issue we will return to later). On the supply side, factors like attending educational institutions (Kannan and Raveendran 2012; Rangarajan et al 2011; Thomas 2012) and increasing household incomes are factors which contributed to this decline.

The Quality of Employment: The Self-employed, Casual and Regular Work: Of the 60 million increase in jobs during 1999-2000 – 2004-05, about 30 million rural workers (women comprising 60% of that number, who were often aged women) joined the workforce as self-employed in agriculture, owing primarily to declining earnings capacity of the usual income earners and productivity stagnation in the agriculture sector.

The decline in agricultural employment in the latter half of the decade, on the other hand, might have happened due to the nationwide drought in 2009 that could have forced the self-employed, smallest and marginal farmers to migrate out for sustenance. Moreover, the presence of alternative employment opportunities in construction at relatively higher wages also induced a move out of agriculture, which shows itself in an increase in casual labour in non-manufacturing (Table 3). The rise in construction employment is reflected, partly, in the boom in rural male casual workers – 16 million new jobs for them.

Around 10 million new workers found regular salaried employment in the non-agricultural sector between 1999-2000 and 2004-05, or about two million per annum. Another seven million obtained regular jobs during 2004-05 – 2009-10 and then another 12.8 million more regular salaried jobs were created between 2009-10 and 2011-12; or nearly three million per annum (Table 3).

Table 3: Employment and Change in Employment, by Sector and Type of Employment
(PS+SS, 1999-2000 to 2011-12)

Sectors	Absolute Volume of Employment (million)											
	1999-2000			2004-05			2009-10			2011-12		
	SE	RE	CL	SE	RE	CL	SE	RE	CL	SE	RE	CL
Agri	142.4	3.5	100.6	172.3	2.9	93.3	147.1	2.1	95.6	151	1.9	78.9
Mfg	22.2	13.0	7.6	28.6	15.9	9.3	24.6	16.4	9.8	29.3	20.5	9.9
Non-mfg	3.2	2.6	14.5	4.8	3.0	21.6	5.3	4.1	38.9	5.7	5.3	44.3
Services	43.2	36.8	9.8	55.4	43.6	8.2	57.5	49.1	9.7	61.6	56.9	8.8
Total	211.1	55.9	132.5	261.2	65.4	132.5	234.6	71.7	153.9	247.7	84.7	141.9

Source: Authors' estimates based on NSS various rounds.

This rise in regular work is a reflection of the very rapid GDP growth that occurred between 2003-04 and 2011-12 of 8.4% per annum. The fact that organised sector work has been rising throughout the period of rapid economic growth is similarly reflected in the continuous increase in regular work.

Employment trends in manufacturing were cyclical in nature – a rise in the first half of the decade; then a fall by three million during 2004-05 – 2009-10 with employment dropping as the global economic crisis began to have an effect; and then showing a recovery by nine million to reach 59.8 million in just two years by 2011-12, driven to a large extent by self-employment and regular work in manufacturing (Table 3). After 2004-05, employment declined mainly among self-employed women within manufacturing activities. They are at the bottom of the production chain, typically in low productivity and low paid work that usually reflects the absence of other viable income earning opportunities. It is also a reflection of the fact that unorganised segment employment fell during 2004-05 – 2011-12 in manufacturing.

Jobs in Organised or Unorganised Segment Enterprises?:

The key driver of the increase in employment during 2000-05 had been the unorganised sector enterprises (as per the definition of the National Commission for Employment in the Unorganised Sector).⁶ Of the 60 million new jobs generated during that period, 52 million were created in the unorganised segment of enterprises (Mehrotra et al 2013). Agriculture (in which employment grew by 20 million) accounted for nearly 40% of this increase.

Since 1999-2000, organised manufacturing employment has consistently increased, albeit slowly, all the way up to 2011-12. Similarly, employment in unorganised services and non-manufacturing industry (most of which is in construction) consistently rose after 1999-2000. It is only manufacturing employment that has shown fluctuations, and all the fluctuation in manufacturing employment since 1999-2000 is accounted for by the unorganised segment of manufacturing (not organised segment). When manufacturing employment rose, most of the rise was in the unorganised segment, and when it fell it was again in the unorganised segment.

There is an important improvement that has occurred even in construction sector. Given the increase in infrastructure (airports, national highways) investment by the public as well as private sector, there has been a sharp rise in organised segment employment in the construction sector of non-manufacturing industry. In fact, in 2011-12, nearly 40% of total construction employment was in the organised segment.

What Type of Employment Was Generated: Formal or Informal?

Though there has been an increase in employment opportunities in the organised sector, it is mainly of informal workers. Their share rose from 32% in 1999-2000 to 54% in 2004-05 to 67% in 2011-12 (Table 4). This is worrying as workers in the unorganised sector and informal workers in the organised sector are more vulnerable with more risk of retrenchment in the event of the slightest economic shock. At the same time, labour laws will need to be re-examined by state governments if this trend towards informal employment is to be stemmed.

Table 4: Sector-wise Distribution of Workers by Organised-Unorganised Enterprises and Formal-Informal Employment (2004-05 – 2011-12, in million)

Sectors	Organised		Unorganised		Total	
	Formal	Informal	Formal	Informal	Formal	Informal
2004-05						
Agriculture	0.2	4.1	0.1	264.2	0.3	268.2
Manufacturing	5.0	10.3	0.6	38.0	5.6	48.3
Non-manufacturing	2.0	7.2	0.1	20.1	2.1	27.3
Services	19.5	10.0	1.1	76.8	20.6	86.7
Total	26.7	31.5	1.9	399.0	28.6	430.5
2009-10						
Agriculture	0.3	13.0	0.1	231.5	0.4	244.5
Manufacturing	5.3	11.1	0.4	33.9	5.7	45.0
Non-manufacturing	2.5	15.8	0.4	29.6	2.9	45.4
Services	22.7	13.5	1.4	78.7	24.1	92.2
Total	30.9	53.5	2.3	373.7	33.1	427.1
2011-12						
Agriculture	0.5	17.7	0.1	213.6	0.6	231.3
Manufacturing	6.1	14.6	0.4	38.7	6.5	53.3
Non-manufacturing	2.7	19.7	0.3	32.7	2.9	52.3
Services	24.2	16.1	1.2	85.8	25.4	101.9
Total	33.5	68.1	1.9	370.8	35.4	438.9

Source: Authors' estimates based on NSS, various rounds.

Size Class of Enterprises by Number of Workers: The Nearly

Missing Middle: The distribution of workers by the size class of enterprises shows that it is highly skewed towards micro and small enterprises or MSEs (enterprises employing less than 10 workers). Post 2009-10, out of the total 27.1 million increase in non-agricultural employment, 24 million had been in the MSEs (Table 5). Further, micro enterprises (employing less than six workers) alone had contributed a huge (17 million) chunk of this increase in employment. About 70% (almost constant since 2004-05) of the total non-agriculture workforce are employed by the MSEs, of which about 58% were employed by micro enterprises in 2011-12.

Table 5: Number of Workers by Size of Enterprise in Industry and Services Sectors in India

Size Class of Enterprises	2004-05		2009-10		2011-12	
	No of Workers (mn)	Share in %	No of Workers (mn)	Share in %	No of Workers (mn)	Share in %
Less than 6	119.1	63.8	121.7	57.6	138.6	57.7
6 and above but less than 10	14.4	7.7	21.6	10.2	28.5	11.9
10 and above but less than 20	11.9	6.4	13.9	6.6	18.6	7.8
20 and above	25.1	13.5	32.6	15.4	41.1	17.1
Not known	16.2	8.7	21.6	10.2	13.3	5.5
Total	186.7	100	211.4	100	240.1	100

Source: Authors' estimate based on National Sample Surveys, various rounds.

There is, however, a minuscule “middle” (enterprises that employed 10 and more but less than 20 workers), if such enterprises can be called that, whose share is increasing but at a very slow pace (from 6.4% to 7.8% during 2004-05 – 2011-12). In absolute terms, there had been an increase in employment by two million between 2004-05 and 2009-10 and 4.7 million between 2009-10 and 2011-12 in medium-sized enterprises. The share of employment in the enterprises that employed more than 20 workers, however, increased from 15.4% to 17.1% (8.5 million) between 2009-10 and 2011-12.

Workers are moving out of low-productivity agriculture. To reap the benefits of this structural shift it is essential that this “missing middle” is filled. Further, the productivity (and wage)

gap between the two extreme size groups is much larger in India than in other Asian economies. This kind of bi-modal distribution increases wage inequality which can then impede the growth of skilled labour, entrepreneurship, and allocative efficiency, which, in turn, can affect growth.

3 Towards an Understanding of Employment Trends since 1993-94

Several questions have puzzled observers about employment trends in India since 1993-94. One question is why employment in agriculture actually rose between 1999-2000 and 2004-05, and has been falling consistently in absolute terms since 2004-05? The most baffling one is why total employment seemed to have grown by as much as 60 million between 1999-2000 and 2004-05, but so little in the following five-year period? And then again why did non-agricultural employment grow so rapidly after 2009-10? We attempt answers to these questions in this section.

Demographic Reasons: While the workforce increased by nearly 25 million between 1993-94 and 1999-2000 (a six-year period), it increased by 60 million in the five years between 1999-2000 and 2004-05. By contrast, hardly any jobs seem to have been created between 2004-05 and 2009-10. This phenomenon in the second half of the decade is accounted for mainly by two factors: one, a purely demographic phenomenon, which explains why so few people joined the labour force; two, it has to do with the reasons why women joined the labour force. And since the workforce (i.e., those who obtain jobs) tracks the labour force (i.e., those who are looking for work), understanding demographic trends (i.e., how many people are turning 15, and the minimum age of work) is critical to understanding labour (and work) force trends.

The fact is that fewer people joined the labour force in the second half of the decade of the 2000s compared to the first half. The population⁸ of age 11 to 15 years had increased enormously (16.6 million) from 94.7 million in 1993-94 to 111.3 million in 1999-2000 with a 3.5% rate of annual exponential growth.

Table 6: Relationship between Demographic Trends, the Workforce and Participation in Educational Institutions (in million)

Age Groups	1993-94	1999-2000	2004-05	2009-10	2011-12
A) Size of workforce by age cohort					
Below 15	13.3	10.6	8.5	5.0	3.7
15 to 24	83.8	82.9	95.0	79.2	76.5
25-59	251.6	279.0	324.7	341.4	356.9
60 and above	25.3	27.0	30.9	34.6	37.1
All ages	374.0	399.5	459.1	460.2	474.2
B) Attending educational institutions – male and female					
Below 15	144.9	180.6	208.2	225.7	238.3
15 to 24	37.5	47.2	55.9	84.6	97.0
25-59	0.8	1.0	1.0	1.7	2.2
60 and above	0.1	0.1	0.1	0.2	0.1
All ages	183.3	228.8	265.1	312.1	337.5
C) Attending educational institutions, female					
Below 15	61.0	79.4	94.8	101.9	109.4
15 to 24	12.7	17.6	22.1	34.0	40.0
25-59	0.2	0.3	0.3	0.7	0.7
60 and above	0.1	0.1	0.0	0.0	0.0
All ages	74.0	97.3	117.3	136.5	150.2

Source: Authors' estimates based on NSS unit level data.

However, the population of this age group had grown only about 7.4 million (0.73% per annum) to reach 118.7 million in 2004-05. Since 2004-05 the workforce in the age cohort below 15 and between 15 and 24 has been decreasing consistently. It is obvious from Panel A of Table 6 that the workforce (tracking the labour force) was increasing, especially between 1999-2000 and 2004-05, but fell sharply after 2004-05. In addition, fewer people were available to join the workforce due to rising enrolments in school and continuing into education. That is, while in 2004-05 208 million children in the relevant age group (less than 15 years) were attending educational institutions and therefore were not part of the labour force, the number stood at 238 million in 2011-12. For youth (15 to 24 years) it increased from 60 million in 2004-05 to 97 million in 2011-12 (Panel B, Table 6). This is true for both girls as well as boys. The increase was slow prior to 2004-05, but accelerated very sharply thereafter.

Women Joining and Then Withdrawing from the Labour Force: A Major Contributor to Employment Trends: Between 1999-2000 and 2004-05, because of rising farmer suicides (Gill and Singh 2006; Jeromi 2007; Shroff and Mitra 2007) low agricultural productivity during that period and a lack of alternate employment opportunities in rural areas, a large number of women joined agriculture as reserve family labour. We have argued elsewhere that most of the so-called increase in employment in agriculture during this period (of 20 million) was due to women; but shockingly, 1.65 million of that increase was of over-60 year old women joining the workforce (Table 7), leading to an increase of 4 percentage points in the LFPR of such women.

Table 7: Old Women Joining Agriculture

Variables	1993-94	1999-2000	2004-05	2009-10	2011-12
Size of female labour force of age 60 and above (million)	5.32	5.59	7.26	7.32	7.36
Female LFPR for age 60 and above (%)	24.10	21.50	25.50	22.60	21.30

Source: Authors' estimates based on NSS unit level data.

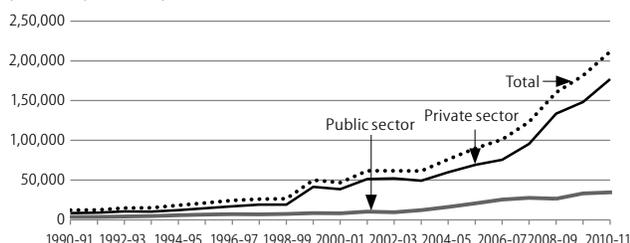
However, between 2004-05 and 2011-12 there was a sharp decline in female employment, particularly for rural females. There are important reasons for the decline in female LFPRs between 2004-05 and 2009-10.

First is education. There had been a significant increase in enrolment, higher for girls both in the age-group below 15 years, as well as 15-19 years. There was a similar increase from 20 to 24 year children: from 14.9% for boys and 7.6% for girls in 2004-05 to 22.5% and 12.8% in 2009-10 (Planning Commission 2013). Panel c in Table 6 reinforces the argument showing the increasing number of women attending educational institutions and therefore out of the labour force.

Second, the incidence of child labour fell consistently, with the number of child workers declining from 13.3 million in 1993-94 to 3.7 million in 2011-12.

Third, growth in mechanisation of agriculture as reflected in increased gross private sector capital formation in recent years (Figure 2, p 54) probably caused a decline in female employment. Himanshu (2011) also noted that mechanisation in agriculture particularly in states such as UP, Bihar, Jharkhand,

Figure 2: Gross Capital Formation in Agriculture and Applied Sector of India (1991-2012, Rs in crore)



Source: Plotted using data from Ministry of Agriculture, Government of India (available at www.indiastat.com).

Chhattisgarh, Karnataka, Andhra Pradesh and West Bengal led to a fall in female employment.

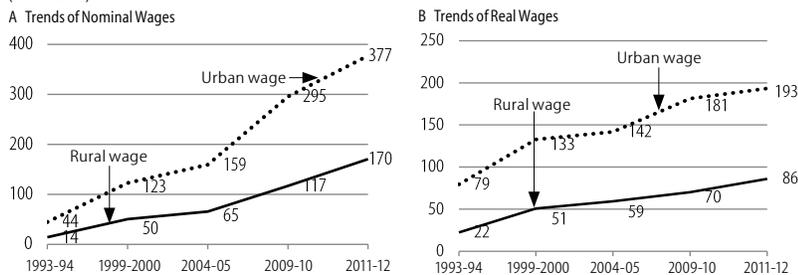
A fourth reason for the decline in female LFPR was that, with older girls going to school (they were earlier responsible for the care of younger siblings) and increased male outmigration from rural areas, adult women face a serious time constraint forcing them to withdraw from the workforce.

Fifth, elderly women (over 60-year olds), who were joining the labour force in the first half of the decade, did not leave the labour force (Table 7), but their numbers did not continue to swell. If anything, their LFPR fell, presumably as a result of household incomes rising from other sources, as well as the open market wage rates rising in both rural and urban areas.

A final reason for a continuation in the fall of female LFPR is a decline in household-level dairying, which is normally work performed by women. With the fall in common property resources, women in households of small and marginal farmers, who earlier undertook dairying, are now less able to do so (which affects subsidiary status employment).⁹

A Lewisian Structural Change Is Occurring: We noted earlier that 36 million fewer persons are engaged in agriculture in 2011-12 compared to the number in 2004-05 – a first in the economic history of India. A set of push and pull factors caused this Lewisian (Lewis 1954) structural change. During the second half of the decade there had been a remarkable and historic shift in rural wages, partly due to the spillover effect of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), on the one hand, and shortage of labour partly due to higher participation in education (Thomas 2012), that forced the farmers to start using machines.¹⁰ In addition, rising demand for labour in the construction sector, both in rural and urban areas, with relatively higher wages also partly explains the absolute fall in agricultural employment post-2004-05 (Figure 3).

Figure 3: Trends of Nominal and Real Wage Rates (at 2001-02 Prices) in Rural and Urban India (1994-2012)



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

MGNREGA from 2005 onwards not only raised wages in public works, but it offered an alternative on a massive scale to working on the landlord's farm for landless labourers for the first time in India's history. Person-days of work generated under MGNREGA was much higher than ever before (Mehrotra 2008). The additional work available within the village also had the effect of shifting the labour supply curve to the left locally, but also in areas where surplus labour would hitherto migrate in search of work. Labour contractors highlight that a combination of improved governance and a sharp pick-up in GDP growth in traditional labour-supplier states such as Bihar and Chhattisgarh has resulted in increased demand for labour in these states, leading to a decline in labour availability in states such as Maharashtra, Karnataka and Punjab, which have historically relied on labour-supplier states for their requirements (Mukherjee 2013).

As wages rose there has been a steep reduction in poverty rate in India, more remarkable in rural areas and a new surge in consumption. The percentage of rural persons below the (Tendulkar) poverty line as estimated by the Planning Commission had fallen to 25.7% in 2011-12 as against 41.8% in 2004-05. As per NSS¹¹ the share of food expenditure (in both rural and urban areas) is declining, whereas the share of non-food expenditure is increasing at a much faster rate. In rural areas, as total consumption expenditure was growing in real terms, the share of expenditure on processed foods and beverages increased from 4.5% to 5.8%, on clothing and bedding increased from 4.5% to 6.3%, on durable goods increased from 3.4% to 6.1% and on footwear also increased from 0.8% to 1.3% during 2004-05 – 2011-12.

In the period of high economic growth, salaries in urban India increased steadily, because of the Sixth Pay Commission, which also had a knock-on effect on private sector wages, particularly in the upper quintile of the wage distribution. This is reflected by the high rise in wages among professionals, personnel in administration and also among plant and machine operators (Table 9, p 55). In urban areas, as total consumption expenditure increased, within it the share of expenditure on processed foods and beverages increased from 6.2% to 7.1%, on clothing and bedding increased from 4% to 5.3%, on durable goods increased from 4.1% to 6.3% and on footwear also increased from 0.7% to 1.2% during 2004-05 – 2011-12.

The Rise of Employment in Construction: Yet another factor was the growing demand for labour in construction activity driven by real estate investments, and also by the \$500 billion of

investment in infrastructure during the Eleventh Plan period (2007-12), which raised this investment's share in GDP from 4% to 7%. What is equally heartening is that infrastructure investment is scheduled to rise during the Twelfth Five-Year Plan period (2012-17) to \$600-\$700 billion. In other words, employment in construction, which had doubled from its 2004-05 level of 25 million to 50 million in 2011-12, is likely to go on increasing over the next five years as well.

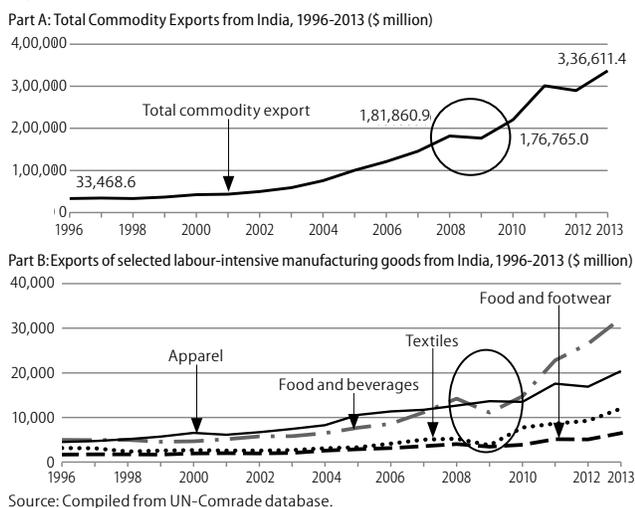
The rise in construction jobs resulted from large private and public investments in the infrastructure sector, as well as in real estate/housing and development projects like the Indira Awaas Yojana, Pradhan Mantri Gram Sadak Yojana and MGNREGA.

Slow Increase in Manufacturing Employment: Employment in manufacturing made a significant recovery between 2009-10 and 2011-12 to reach 59.8 million with an increase of nine million in two years. However, the point remains that manufacturing employment remains an issue. Manufacturing employment had increased by 11 million or 25% between 1999-2000 and 2004-05 (from 44 to 55 million), but fell by three million to 52 million in the latter half of the decade.

The decline in manufacturing employment during 2004-05 – 2009-10 (by three million) was a result of three sets of factors: falling demand for manufacturing exports (Ministry of Finance 2013), rising import-intensity of manufacturing output; and rising wages, with the latter two raising capital intensity.

There was a sharp decline in merchandise exports, particularly labour-intensive manufacturing exports of India during 2007 to 2009, on account of the global economic crisis that reduced demand (Parts A and B, Figure 4). The *Economic Survey 2012-13* also pointed out that the drastic fall in the share of manufacturing exports was mainly due to the falling shares of traditional items like textiles, leather and gems and jewellery which are labour-intensive activities. The RBI's Annual Report (2011-12) mentioned that capital goods production also contracted sharply and this was partly on account of substitution by imported capital goods (especially from China). Hence, investment decelerated faster than other components of domestic demand.

Figure 4: Trends of Merchandise Exports of India (1990-2013)



Post-crisis, a recovery in manufacturing employment was experienced with a 9.1 million increase in absolute terms. This is partly explained by the rise in exports of commodities, particularly labour-intensive manufacturing goods: exports of food and beverages, wearing apparel, textiles increased significantly.

However, there are two other structural trends in place that explain falling employment in manufacturing in the second half of the 2000s.

Rising Import-Intensity of Manufacturing: One of the structural trends visible in the manufacturing sector is the rising import ratio in output. The manufacturing sector is intrinsically integrated into the global economy with an average trade ratio for the period 2008-09 to 2010-11 of 180%; a rise from 92% in 1994-95. The integration is, however, asymmetric with import penetration almost doubling whereas exports increased by only 20% (Mohanty 2013). If petroleum, oil and lubricants (POL) exports are excluded, the ratio which was actually showing a trade surplus till 2003 turns into a deficit post 2003-04 (Table 8). The non-oil trade deficit increased sharply in the slowdown. Further, in the period of the slowdown, import competition has displaced domestic production to a huge extent (Mohanty 2013).

Table 8: Manufacturing Integration and Trade Balance (with and without POL exports)

Year	X-M/ Manufacturing GDP	(X-M) Less POL Exports/ Manufacturing GDP
1993-97	7.6	6.5
1998-2003	14.5	12.7
2004-08	11.4	-0.2
2009-10	10.2	-9.6
2011-12	16.8	-6.3

Source: Mohanty (2013).

Rising wages and other costs (rising real estate prices, taxes and tariffs, electricity) inflated the cost of our domestic manufacturers. This often encourages manufacturers to import final goods from China and other neighbouring countries as the costs of production at home turned higher than imported final goods. Many countries in the world have witnessed a rising share of China in their import basket.¹²

For India, the upward trend in import intensity since 2003 explains capital intensity, to some extent. Goldar (2013) noted that starting from 2001, exports of manufactured products that rank high in terms of import intensity¹³ have grown much faster than those with low import intensity.¹⁴ Also firms spending more on technology imports and/or capital goods imports, those with larger firm size and higher foreign equity holding, and with new plant and machinery have a higher import intensity of output.

However, there is a structural dimension to the rising capital-intensity of manufacturing, which is a global phenomenon. Rising capital and skill intensity of manufacturing, as Rodrik (2012) argues, has limited the capacity of the manufacturing sector to absorb labour. According to him, it will not be possible for the next generation of industrialising countries to move 25% or more of their workforce into manufacturing, as was accomplished by the east Asian economies. Manufacturing employment in China showed a continuous increase from 86 million in 2002 to 99 million in 2009. Chinese manufacturing employment grew by about 15% over the seven-year period, despite the global economic crisis beginning in late 2008 after which manufacturing employment either stagnated or declined in many developed/industrialised countries (Banister 2014).

Table 9: Capital Intensity of Output in Organised Manufacturing

Manufacturing	2001-02	2004-05	2009-10	2010-11
Labour to capital ratio	0.179	0.165	0.087	0.0789
Capital-output ratio	0.449	0.307	0.362	0.344

Source: Authors' estimates based on Annual Survey of Industries, various years.

In India, as observed from the Annual Survey of India (ASI) data on organised manufacturing, the labour to capital ratio has declined from 0.179 in 2001-02 to 0.165 in 2004-05 and further to

0.087 in 2009-10 and even further to 0.0789 in 2010-11 (Table 9). The pace of decline accentuated in the second half of the decade. Also, for manufacturing as a whole as well as for most of the sub-sectors, the capital-output ratio declined in the first half of the decade, while it rose during 2004-05 – 2009-10 according to ASI data.

Capital Intensity of Manufacturing: Table 10 shows how wages have risen between 1994 and 2012 in real terms. The increase of wages (the reasons for which were discussed earlier) in the lower quintiles has two effects in the labour market: the price and volume effect. The price of labour was ratcheted up in the open market in rural areas leading to an increase in the labour cost of production in manufacturing sector. The landless labour that would otherwise migrate to richer rural areas (e.g. Punjab, Haryana and Tamil Nadu) or to urban areas were encouraged to stay and work locally. This results in shrinkage in the volume of the unskilled labour available for the manufacturing sector. This combination of the price and quantity (of labour) effect in the labour market also combined to raise the capital intensity in manufacturing sector (in addition to the rising import intensity of manufacturing).

Table 10: Trends of Rural and Urban Real Wages by Occupation in India (1994-2012)

Occupations	Real Daily Wage Rates (in Rs, in 2001-02 prices)					
	1993-94	1999-2000	2004-05	2007-08	2009-10	2011-12
Rural Areas						
Professional and admin	91.62	167.81	193.95	182.63	211.42	227.34
Clerical jobs	99.73	142.11	158.10	173.29	198.36	191.36
Sales and services	16.91	70.32	69.25	87.93	102.51	107.18
Agriculture and allied	15.08	34.14	39.79	51.10	56.44	73.11
Crafts and trade workers	24.26	54.47	56.69	79.84	79.51	92.31
Plant and machine operators	43.26	85.06	92.25	97.99	96.78	107.39
Total	22.45	50.83	59.38	64.62	70.24	86.07
Urban Areas						
Professional and admin	154.90	277.17	317.26	365.04	377.14	390.57
Clerical jobs	148.53	186.93	210.34	217.96	245.71	240.08
Sales and services	42.22	90.96	88.58	115.42	129.26	135.94
Agriculture and allied	24.07	55.91	50.24	92.57	126.39	110.30
Crafts and trade workers	54.13	89.09	85.42	107.19	111.35	121.72
Plant and machine operators	81.59	112.21	115.58	133.07	148.54	149.23
Total	79.45	132.74	141.90	164.10	181.19	193.35

Source: Authors' estimate based on National Sample Surveys, various rounds.

While this was the situation for workers at the lower end of the wage and skill distribution, a similar development was occurring at the higher end of the salary/skill distribution. Between 2003-04 and 2010-11, GDP grew by 8.4% per annum. Since it was both industrial (manufacturing and non-manufacturing) and services growth that was driving GDP, skill shortages emerged at the higher end of the salary/skill distribution, increasing salaries of the skilled and highly skilled.

These two sets of forces that were driving wages for the unskilled as well as salaries for the skilled/highly skilled were also driving greater capital-intensity in goods and services production.

Non-agricultural Employment Rise between 2009-10 and 2011-12: After 2004-05, the domestic demand for a number of consumer goods has grown sharply, with a rise in the size of the middle class, as well as the emergence of a new non-poor. But while employment growth has occurred in the organised

segment of manufacturing and services, it is the unorganised enterprises that have driven employment growth in secondary and tertiary sectors. While consumption of the growing middle-class is met largely by organised segment enterprises (which generate little employment and where the capital intensity of production has grown, as just discussed), the consumption of the new non-poor benefits the smaller unorganised segment enterprises. The decline in the number of poor by 138 million during 2004-05 to 2011-12 and the rise in consumption was an outcome of the rise in real wages, which actually attributed to behavioural change in the households' consumption expenditure following Engel's law. As a result the demand for non-food consumer goods increased during 2009-10 – 2011-12.

This rise in consumption expenditure is reflected in rising output and employment in the following manufacturing sectors (see Table 2): food processing (for example biscuits, milk); leather goods; furniture; textiles; garments and apparel, mobile telephones (for which telecom services have seen a rise in value added even in remotest villages). All these product areas and services have seen a dramatic increase in employment in the two years since 2009-10.

However, there is an inverse relationship (Mehrotra et al 2012) between employment generation and gross value added. The unorganised manufacturing sector absorbs a whopping 65% of employment, whereas the unregistered manufacturing (almost equivalent to the unorganised one) generated only 33% of total output¹⁵ of the manufacturing sector in 2011-12. As a result of this labour productivity in unorganised manufacturing sector is very low. Conversely, labour productivity is higher in organised manufacturing, but fewer jobs are generated.

It so happens that it is the smallest non-agricultural enterprises that contributed the most to employment growth between 2009-10 and 2011-12. As Table 5 shows, total non-agricultural employment grew by 27 million in that two-year period. Of that increase as much as 24 million was accounted for by firms that employed less than 10 workers. In fact, 17 of the 24 million jobs created were in enterprises that employed less than six workers.

Service sector employment has increased by about 1.8 million per annum during 2004-05 to 2009-10; whereas post 2009-10, in the next two years, it increased by 5.5 million per annum. The increase in employment prior to 2009-10 was primarily in traditional services like trade, transport and communications, real estate education and public administration. Post 2009-10, there is further momentum in communications, real estate,

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education and other services. A huge increase in public and private investment in infrastructure and telecom sectors, initiatives like the SSA and right to education are responsible for the rise in service sector employment. This rise in employment got a further boost with the emergence of newer forms of services like e-retailing, financial services, mobile phone revolution, courier, tourism, R&D, and legal services.

4 Conclusions

We estimate, on the basis of current LFPRs by age group, that the number of youth who will join the labour force will raise the male labour force by nearly 40 million over five years (2012-17), and the female labour force by 11 million¹⁶ (or, a total of 51 million). In other words, approximately 10

million new young people will be looking for work each year. Thus, the number of non-agricultural jobs that will need to grow is at least 10 million per annum (or 50 million in five years). If we add the stock of educated unemployed currently (total 10 million), they should be added to the numbers who will look for work in industry and services. In addition will be those leaving agriculture (five million per annum have left agriculture between 2004-05 and 2011-12). How are all these 17 million jobs per annum to be created in non-agriculture? This will have to be the subject of another paper. In any case, it is a challenge that the new government will have to face, if the demographic dividend is to be realised before 2040, by when the dividend would have ebbed away and India would have become an ageing society.

NOTES

- 1 The fall between 2004-05 and 2009-10 seems misleadingly low because 2009-10 was a drought year, and hence, despite rapid agricultural and overall GDP growth, incomes/consumption expenditure could not have increased much. Meanwhile, by 2011-12 agricultural and GDP growth had bounced back.
- 2 The incidence of poverty in this period declined from 37.2% in 2004-05 to 21.9% in 2011-12.
- 3 For the bottom four fractiles, share of clothing increased from 17% in 2004-05 to 26% in 2011-12; footwear increased from 18% to 30%, medical expenditure increased from 27% to 33% in the above-mentioned period in rural areas. In urban India too, share of clothing, footwear, medical expenditures have increased during this period.
- 4 The female LFPR is below 40% in all countries in the region except in the Maldives and Nepal.
- 5 The decline was among women who considered such rural employment as their principal work (while women's engagement in subsidiary status employment rose, i.e., on a part-time basis, or fewer number of days, i.e., less than 180 days though more than 30 days in the year). Between 2004-05 and 2009-10, women's engagement in agricultural activity even as subsidiary work had fallen, but such work rose between 2009-10 and 2011-12.
- 6 "The informal sector consists of all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than 10 total workers".
- 7 As per NCEUS definition, "Informal workers consist of those working in the informal sector or households, excluding regular workers with social security benefits provided by the employers and the workers in the formal sector without any employment and social security benefits provided by the employers".
- 8 These population figures are estimated using NSS unit data and adjusted to census population.
- 9 The total number of dairy cattle was rising in India, but fewer small/marginal farmers could keep cattle (except for home consumption of dairy products).
- 10 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.

- 11 See NSS KI(68/1.0): *Key Indicators of Household Consumer Expenditure in India* (Page no 20).
- 12 China ranked one in merchandise exports to the world with a market share of over 10% in 2010 compared to a share of less than 2% in 1998 (Husted and Nishioka 2012).
- 13 Basic chemicals, pharmaceuticals and cosmetics, plastics products, iron and steel, manufacture of metals, electrical and non-electrical machinery and gems and jewellery.
- 14 Tea, coffee, processed fruits, leather and leather manufactures, ready-made garments, textiles, coir and coir manufactures.
- 15 See National Account Statistics report (2014) of the Central Statistical Organisation (CSO).
- 16 The population of age 10 years to 34 years of those who are currently enrolled at secondary and graduate levels are expected to join the labour force in the next five years. It is important to note that some, not all of this population, will join the labour force. To estimate the labour force size (new entering) over five years (2012-17) we multiply their current LFPR (assuming it would be constant or slightly higher) with their population increase to determine the volume of the future labour force.

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