Inequality in India–I

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Examining the course of inequality in terms of average per capita expenditure, it is seen that the period after the reforms were initiated registered a dramatic increase in the relative growth of welfare in the top expenditure group, even as the poorest group progressed at a rate higher than the mean. The dip in the middle of the distribution disappeared later when a "ladder" pattern of growth was observed, with each quintile group showing a higher growth rate than the preceding one. The major reasons for this changing pattern are discussed in terms of the structure of growth in the Indian economy, particularly what happened in the tertiary and manufacturing sectors. The paper is being published in two parts. Part II will appear in the issue of 12 August.

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India lends itself as a particularly useful case to study the impact of globalisation on the course of inequality within the economy. Although some attempts to open up were made in the second half of the 1980s, serious steps towards liberalisation date from the crisis of 1991 onwards. Over the next two decades, the process continued in small steps.[1] The course of inequality in the economy can be traced through the various rounds of the National Sample Survey Office (NSSO) data of households, conducted every five years.

This paper begins with an examination of the traditional theory, which predicts that globalisation would lead to decreasing inequality in developing countries. It outlines why this might not be the case as suggested in the literature. This is examined with specific reference to the nature of Indian labour markets. These aspects of the employment structure in India are elaborated upon, and the major features of household inequality are outlined. Since incomes from various sources are pooled together in the reported total income (expenditure) of the household, we are not able to say much about the determinants of individual earnings from this analysis.

In the second part, the paper looks at the part of the survey that deals with wage earners. The determinants of labour income are analysed. This exercise misses out the analysis of earnings of a substantial proportion of the Indian labour force—the self-employed. Since the earnings of such workers are a mix of labour incomes and returns to capital and entrepreneurship, this is not easy to address.

1 Globalisation and Inequality

Globalisation has been associated traditionally (in standard textbooks) with decreasing inequality—at least within an economy. The Heckscher–Ohlin model predicts that as an economy opens up to trade, it would be associated with increasing demand for less-skilled labour, plentiful in low-income economies. Clearly, much depends on the precise nature of the labour used in the tradable sector, and the associated changes in the non-tradable sector that ensue as trade expands.

1.1 Nature of 'Modern' Labour Markets

Economic development means faster growth of the non-household sector of the labour market. This leads us to the first critique of the standard view on the lines of Adrian Wood's (1994) work, which suggests that this "modern" labour market favours more educated labour over the mass of "no education" labour. However, the difference between the two types of labour requires clarification.

The basic difference between a select labour force in the non-agricultural formal sector and the mass of labour found in the informal sector turns out to be not so much as to whether or not the former has received some education or not, but their ability to accept the discipline and the commitment needed for industrial work of a modern economy. Thus, the attachment of such labour to the individual firm that enables it to acquire firm-specific skills is crucial. This gives rise to the importance, traditionally ascribed in the Indian industry, to "stable" labour, selected out of the mass of floating migrant jobseekers, often called "casual" labour. While the importance of on-the-job training and the formation of a firm-specific stable labour force are crucial in most developed countries as well, the difference in the non-traditional sector labour markets of developing countries can be emphasised as follows. In developing countries, the urban labour market attracts both casual (non-stable) and regular workers. The relative importance of casual labour, a large number of whom are migratory with stronger connections to the rural economy, would be much larger. The wage differential between the two types of labour would also tend to be much larger, reflecting the higher supply price of labour settled in towns.

As we shall see, the Indian experience does not show that educated labour with computer skills is quantitatively the most important part of the labour force used in export expansion. The reason for the wide gap in "skills" or quality of labour in the modern sector and the "no education" labour in the traditional sector is basically a question about the contents of the education system. The failure to participate in the globalised manufacturing sector has been ascribed partly to the lack of skills developed in the labour force, which has technically gone through the primary or even the lower secondary rung of the education system. The quality of education and, in particular, the discipline expected to be imparted through primary schools, has not really been able to transform the schooled into a qualitative category sufficiently different from "no education" labour. It follows that skill formation has to be imparted critically within the factories in the modern sector.[2]

1.2 Institutional Factors

While the point made above is generally valid for all newly industrialising economies with a substantial transfer of labour from rural to urban areas, certain specific features of the Indian labour market could be singled out as exacerbating the rural–urban divide. Two of the more important ones might be mentioned here.

The first is the prevalence of gender bias in industrial employment in India. Historically, the textile mills (as also other industries) in India tended to show a bias towards using male labourers and confining females to a few specific occupations. This required attracting family migrants with a higher supply price to provide the core of stable labour needed by modern factories. This scenario contrasts with that in Japan, where female labour, in the few years before marriage, was used to feed the needs of Japan's textile factories. They were housed in dormitories attached to the factories, thus giving the potentially unstable labour (with a lower supply price) a degree of stability needed for industrial work (Mazumdar 1959).

A second important feature is provided by the case of decentralised industrialisation in several East Asian countries, including Taiwan, Japan, and South Korea. These economies were able to develop modern industries with a distinct bias to small enterprises that were often dispersed to smaller towns and semi-agrarian areas, thus enabling single migrants with a lower supply price to commute to work in manufacturing enterprises in the "formal" sector, producing goods for the globalised markets. India, by contrast, used migratory labour disproportionately in the informal sector. The formal–informal wage difference was thus smaller in East Asia than in India.[3]

1.3 The 'Missing Middle'

Unlike several of the East Asian economies, India's manufacturing sector is characterised not by a more or less even distribution of employment by size groups, but by a distribution with two modes: one at the lower end with employment size below 10 workers, and another at the high end with the number employed more than 500 workers. It should be emphasised that this dualistic structure with a "missing middle" is found in the "modern" non-household sector of manufacturing (that is, excluding the large informal sector of household manufacturing).

Theoretically, globalisation could cut both ways in its impact on this dualistic size structure. On the one hand, insofar as globalisation demands greater standardisation and quality of products, manufacturing units would try to locate themselves in the high labour productivity sector, leaving the domestic market to the household and small non-household units. This would tend to increase the gap between the lower and upper modes of the dualistic structure. On the other hand, with the spread of industrialisation, one could expect an increasing supply of workers adapted to industrial work and discipline coming into the labour market. However, this trend will be weakened if industrialisation is led by large-scale units as is the case in India (since much of industrial skills are acquired through on-the-job training within the factories). We examine which of these trends have affected India more strongly in recent years in Section 5.

1.4 Importance of Non-tradable Sector

A major characteristic of Indian growth in the last few decades is that it has been led by the tertiary sector. A large proportion of the tertiary sector has been "non-tradable," centred on the domestic market.

The dominance of the domestic tertiary sector in the Indian growth process provides a challenge to the Heckscher–Ohlin interpretation of the relationship between growth and inequality. In the traditional view, the tertiary sector is a sector of "free entry" for the mass of unskilled labour with a low supply price. Thus, the dominance of this sector would imply a disproportionate demand for low-wage jobseekers and would help mitigate inequality in the economy over time.

Our examination of the trends in inequality by industrial sectors in Section 5 shows that there is little difference in the

"dualistic" structure of household welfare (as measured by the average per capita expenditure or APCE) in the manufacturing and tertiary sectors. One might hypothesise that this is because the tertiary sector, along with a large mass of unskilled low-income workers, also has a sizeable amount of skilled workers in financial and public services. But, a more detailed examination of the sub-sectors within tertiary activities reveals that this is not so. Much of the increase in the share of employment in the tertiary sector is because of the increase in the sub-sector, "trade, hotels and restaurants."

It appears that an important element in the structure of the tertiary sector is product market segmentation, which differentiates "poor man's goods" of low quality from "rich man's goods." Since the price differential between these two types of goods is substantial, this phenomenon is necessarily associated with a bi-modal structure of incomes and increased inequality. This phenomenon mirrors the bi-modal structure in the manufacturing sector, which is accentuated by the "missing middle."

1.5 Limited Globalisation

The Indian export sector is relatively small, and although not as extreme as some other countries, it has been reasonably centralised. The large role played by the tertiary sector (Table 1) has meant that the domestic value added component of India's exports has been higher than the average in the world economy. At the same time, much of Indian manufacturing—except perhaps for diamond processing and processing of crude oil—is based on domestic resources. Indian manufacturing is still far from being integrated with the globalised value chain.

Table 1: Exports as a Percentage of Gross Domestic Product

Export/GDP	2000–01	2007–08	2010–11	2011–12
Manufacturing	2.8	2.5	3.3	3.8
Tertiary	2.1	2.8	2.9	3.0

Source: Asian Development Bank Economic Indicators, World Trade Organization, and Exim Bank, India, 2015.

This is in contrast with the experience of manufacturing exports in China. Chinese export growth has been strongly fuelled by this sector, which also has strong dependence on imported inputs. But the difference with India is its volume, reflecting the much stronger integration of China with the global value chain. Further, Chinese participation in the global market is not by any means dominated by products at the high end of technology. In fact, the Chinese success is at the lower end of consumer products. A substantial part of what we have described as the "poor man's goods" has been provided by Chinese exports, in contrast to India's presence in this sub-sector in the domestic market. In fact, India's products are facing growing competition from imports from China. The detailed discussion of this phenomenon and its probable causes are large topics, which are beyond the scope of this paper.

2 Inequality Trends at the Household Level

The literature on inequality at the household level uses APCE of the households as a measure of household welfare. The limitations of this measure of inequality are fairly obvious. Household expenditure surveys like the NSSO cannot include the spending of households on many types of financial and real estate assets that are not properly reported or documented. In economies like that of India, where the expenditure on such assets is systematically undervalued by both the buyers and the sellers, the survey data will necessarily under-represent the expenditure levels of richer households. Thus, the inequality measure will be underestimated by an unknown extent.

However, available information on wealth inequality shows that the top 10% of households possess a little over half of the total wealth (whether measured in terms of assets[4] or net worth[5]) in the country, while the bottom 10% possess a mere 0.2% of the total wealth. The bottom 50% of the population own less than 10% of the total wealth. The wealthiest have tended to consolidate between the two surveys (the top 10% owned 51.94% of wealth in 2002 versus 50.79% in 1991), while the bottom 10% have only lost their share (0.21% in 2002 versus 0.22% in 1991). Overall, there is a divergence in asset holdings as the rich have pulled away from the poor in asset accumulation after liberalisation (Jayadev et al 2007).

In what follows, we divide the Indian experience into three periods, determined by the availability of different rounds of the NSSO Household Consumer Expenditure Surveys.[6] Since the reforms of the largely closed economy are thought to date from 1991, we consider the first period 1883–1993 to be the pre-reform decade. The second period 1993–2004 is the first phase of the post-reform era. India's participation in the global economy accelerated in the third period, 2004–11. According to official statistics, the gross domestic product (GDP) growth rate accelerated over these three periods from 4.98% in the first to 6.26% in the second, and 8.45% in the third.

Indian growth, in the post-reform period (post 1993), has been one of increasing inequality accompanied by significant decline in poverty. In the pre-reform period (1983–93), the growth pattern in rural areas was pro-poor in the sense that the APCE grew at a faster rate for those at the lower end of the consumption expenditure distribution. In urban areas, its distribution was virtually neutral. Marked changes took place in the post-reform period. The richer groups in rural areas were favoured, but the urban areas had a much stronger bias towards pro-rich growth (Mazumdar and Sarkar 2013).

Table 2 presents the measures of inequality of the APCE. The overall Gini has been almost stable during 2004–07,

Table 2: Measures of Inequality (Average Per Capita Expenditure, 1983 to 2011–12)

| Period	GE(0)	GE(1)	GE(2)	Gini
Rural				
1983	0.1690	0.1952	0.3244	0.3193
1993	0.1480	0.1840	0.4537	0.2982
2004	0.1724	0.2233	0.5312	0.3199
2011	0.1619	0.2210	0.8810	0.3103
Urban				
1983	0.2226	0.2487	0.4217	0.3670
1993	0.2093	0.2387	0.4166	0.3568
2004	0.2501	0.2902	0.5344	0.3891
2011	0.2501	0.3033	0.6039	0.3901
Total				
1983	0.1876	0.2170	0.3698	0.3370
1993	0.1967	0.2397	0.5042	0.3465
2004	0.2326	0.2920	0.6254	0.3758
2011	0.2309	0.3028	0.8415	0.3743

GE shows Generalised Entropy measures. GE(0) gives more weight to the lower tail of the income distribution, GE(1) gives equal weight, and GE(2) gives more weight to the upper tail of income distribution. For GE(a), the parameter (a) varies from 0 to 1, GE becomes less sensitive to income at the lower end of the distribution, and more sensitive to income at the higher end. The cases of special interest are values of 0, 1 and 2. With a=0, the measure corresponds to the mean log deviation, a=1 gives the Theil index of inequality, and a=2 gives the half of the squared coefficient of variation.
Source: Authors' calculations from NSSO, various rounds.

contrasted with 3 percentage points' increase over 1993–2004. The entropy measures give an indication of the changes in different parts of the income distribution. GE(0), which gives greater weight to the lower part of the distribution, has reversed its upward trend of the first decade of the post-reform period and more so in the rural sector, but the growing importance of high incomes can be seen in both sectors, and particularly in the rural sector in the accelerated rate of increase of the GE(2) index.

The kernel density function graphs (Figures 1 and 2) give a visual image of the shifts in the distribution of the APCE over different NSSO rounds. Over the years, the peak has moved to the right and the mode of the distribution also has fallen substantially.

**Figure 1: Kernel Density Functions for Rural Areas, 1983 to 2011–12**
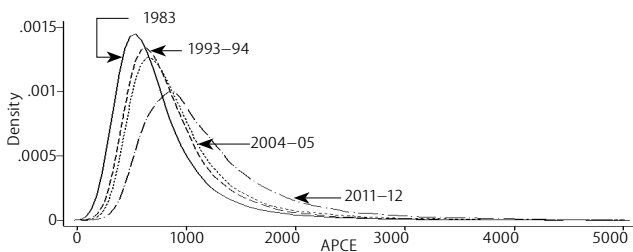
The APCE is deflated using consumer price index for agricultural labour (CPI-AL) for rural areas.
Source: Authors' calculations from NSSO, various rounds.

Figure 2: Kernel Density Functions for Urban Areas, 1983 to 2011–12
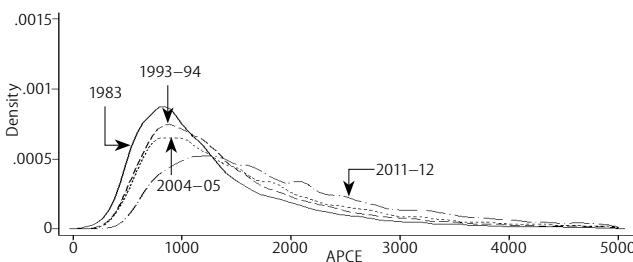
The APCE is deflated using consumer price index for industrial workers (CPI-IW) for urban areas.
Source: Authors' calculations from NSSO, various rounds.

Figure 3: Growth of APCE across Quintiles (Relative to Average Growth)
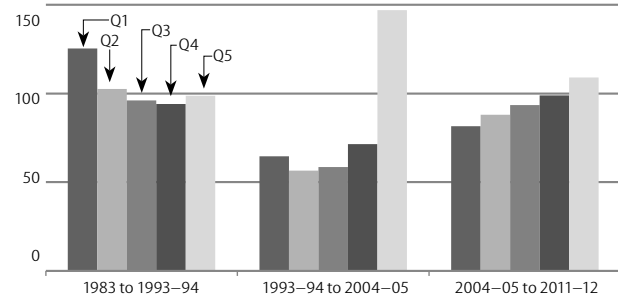
Q1 is the bottom quintile and Q5 is the top quintile; other intermediate quintiles are in ascending order. Average growth of the APCE in each period is taken as 100.
Source: Authors' calculations from NSSO, various rounds.

The bar graphs of the annualised rates of growth of the APCE, for the five quintiles, relative to average (mean) growth, over the three periods—1983 to 1993–94, 1993–94 to 2004–05 and 2004–05 to 2011–12—are given in Figure 3.[7]

The bars of quintile growth rates show significant differences in the three periods. In the first (pre-reform) period,

the poorest quintile had the highest growth rate. The rate decreased successively in the next three quintiles, but picked up in the top quintile. This was the period in which the evidence points to the poorest and the richest, increasing their household welfare at the expense of the middle-income groups. Overall, the degree of inequality remained virtually stable.

In the first post-reform period (1993–2004), the u-shaped pattern of growth rates by quintile groups is moderated with the dip in the middle being less marked. In fact, it is only the top quintile that shows a relatively higher growth rate, with the growth of the APCE being almost uniformly spread across other quintiles. Further, whatever dip is seen occurs for the second and the third quintiles, with the fourth quintile joining the fifth in the category of higher growth rate. An important point to emphasise is that the top quintiles had a much higher growth rate than the lowest, in contrast to the experience of the pre-reform period. The post-reform period showed a decidedly upward movement in the measures of inequality for all the three entropy measures, as well as for the overall Gini (Table 2).

We see a total change in the pattern of quintile growth rates in the third period (2004–11). As the overall growth rate accelerates, the u-shaped pattern is replaced by a "ladder" with the relative growth rate steadily increasing for each successive quintile. The experience of the lowest quintile sharing relatively higher growth with the richest quintile that moderated in the second period now disappears altogether. But, since all groups get some of the fruits of growth, the overall measure of inequality stays virtually the same, except for the GE(2) measure, which is sensitive to high incomes. It registers a large jump, and interestingly, more so in the rural areas (Table 2).

The Asian Development Bank (ADB 2012) looked at the experience of select countries roughly over the period 1990–2010. The most common pattern observed in countries—including in China, Indonesia, Sri Lanka and Lao Democratic Republic—was the "ladder," that is, growth rates increasing with successive quintile groups. India seemed to be exceptional insofar as the growth rate, besides being low overall, increased conspicuously only at the highest quintile. This was confirmed in the same study by a comparison of the continuous "growth incidence curve" (plotting growth rate against per capita income or expenditure) for India and Indonesia. The nearly constant value of growth in India, until it took a sharp upward lift at about the 80th decile, contrasted sharply with the decidedly upward-sloping curve for Indonesia. The ADB study, however, covered the Indian experience for a single period, covering the two end-points, 1993 and 2010. As we have seen, the Indian experience registered several changes till the high-growth phase of 2004–11 when it conformed to the ladder pattern observed in other countries.

3 Determinants of Inequality

Some idea of the proximate determinants of inequality in the APCE can be formed from a Fields decomposition of the results of the regression model "explaining" the value of the APCE.

The results of the exercise of the "factor inequality weights" as per the Fields methodology are given in Tables 3 and 4.

It is apparent that demographic factors, as seen in this model by "household size," have a considerable impact on the explanatory power of the model (Table 3). It should be noted that the earner–dependent ratio (which is partly responsible for the variance in the APCE) is negatively correlated with household size.

As in the case of the 2004–05 NSSO round, the major proximate determinant of inequality is education. In fact, the contribution of "education of the household head" in 2011–12 might have increased due to the results obtained from the information technology (IT) sector. But, IT is not the high-income employment-generating industry in the tertiary sector, as IT, as a subgroup of the financial and business service sector, has generated less than 1% of the total employment in 2009–10 (Sarkar and Mehta 2013). Table 8 (p 53) shows that two tertiary sectors—trade, hotel and restaurants (in 2011–12), and transport, storage and communication (from 2004–05)—have substantially increased their relative productivity in relation to agriculture. It can be inferred safely that, in addition to IT, sub-sectors such as communication, and the high-end part of hotel and restaurant have begun to create high-income employment in the decade of 2000–10.

Mazumdar (2010) also highlighted the contribution of "education of the household head," particularly for urban areas in 2004–05. In the current analysis, we introduce an additional dummy variable (formal–informal sector), and it is seen to be a significant explanatory variable, although some distance away from the importance of education. Other significant determinants continue to be social category, industry, and region, for both the rural and the urban sectors. Note that the variance explained by the model (with an identical set of explanatory variables) has improved somewhat, though no higher than a maximum of 36% in the urban sector.

3.1 Household Inequality in China and India

There is a great deal of interest on the comparative experience of India and China in the process of growth with inequality. The trend of increasing inequality has actually been higher in China. Some analyses of sample surveys like those conducted by the NSSO in India have been undertaken by

Table 3: Factor Inequality Weights for APCE in 2011–12, Including Household Size

	Rural	Urban
Head age	0.004	0.006
Household size	0.099	0.136
Social category	0.033	0.035
Religion	0.009	0.005
Region	0.069	0.067
Education of the household head	0.094	0.158
Industry	0.017	0.020
Formal sector	0.034	0.045
Residual	0.641	0.529

Source: Authors' calculations from NSSO, Household Consumer Expenditure Survey, 2011–12.

Table 4: Factor Inequality Weights for APCE in 2011–12, Excluding Household Size

	Rural	Urban
Head age	0.003	0.001
Social category	0.036	0.043
Religion	0.010	0.009
Region	0.079	0.075
Education of the household head	0.095	0.159
Industry	0.015	0.021
Formal sector	0.039	0.050
Residual	0.724	0.642

Source: Authors' calculations from NSSO, Household Consumer Expenditure Survey, 2011–12.

Chinese researchers. One such exercise is done by researchers at the Chinese Academy of Social Sciences (Mazumdar 2010). No claim is made that the sample surveys are strictly comparable in the two countries. For one thing, the Chinese data set[8] refers to urban households alone and the dependent variable is household income per capita (not expenditure, as in the Indian sample survey). The technique of analysis is similar, based on a decomposition exercise of a regression model to explain the variance in household income (expenditure) per capita. Major observations from a rough comparison of the results are summarised as follows:

(i) The explanatory variable of the Chinese model seems to be greater, 41.9% in 2001 and 54.2% in 2005.

(ii) For India, the human capital variable explains more than 14% of the variance in both years, but it is still less than in the Chinese model, which is close to 16%.

(iii) The significant role of the tertiary sector in increasing inequality is apparent in China as in India. The service sector dummies contribute 4.5% to 5% to explain the variance.

(iv) A major difference in the experience of the two countries is the much larger role of the "region" dummies to explain inequality in China. They account for a large 10%–15% of the variance in urban China compared to around 2.5% in urban India. Admittedly, the difference in the definitions of "region" in the two exercises might contribute to this large difference, but it is large enough to constitute a major element of difference between the two economies.

(v) The variable "informality" plays a significantly smaller role in the Chinese model at a maximum of 2% in the 2005 survey, compared to 5% in urban India. Part of the difference is accounted for by the difference in the nature of informal employment in the two economies. In China, because of non-registration of a large proportion of urban immigrants, a good deal of these migrants (who will be in "informal" employment) are single migrants living with other migrants under the same "household" roof. So, even if there are large differences in earnings between such migrants and other "formal" sector workers, the difference in per capita household income is likely to be much less because of the higher proportion of adult earners in such migrant households. In other words, while formal- and informal-sector earnings are put together in the analysis, the formal–informal earnings difference will be a crucial factor in the explanation of the inequality in earning. But, if we are explaining the inequality in the distribution of per capita income (or expenditure) per household, the proportion of earners in the household size (or some such measure of earning strength) is likely to be of greater importance. For the Indian analysis, as mentioned, household size was not used along with the earner–dependent ratio of the household because there was likely to be significant (negative) relationship between the two. While this is likely to be the case if the majority of households were "nuclear," the presence of a large proportion of single migrant households in the urban labour market (with much of their nuclear families left behind in the rural sector) is likely to complicate the picture. The arrangement worked out by such migrants in terms of the households

they live with will be critical, and households would show more variance in terms of the earner–dependent ratio relative to family size. It seems likely that the larger presence of such migrants in urban China results in the "proportion of adults in the household" variable play an independent and significant role in the explanation of per capita household income in the Chinese case. Thus, we see that the "demographic" variables in the Chinese model turn out to be much more important in the decomposition of household income per capita.

4 Employment and Earnings by Employment Sectors

Some researchers have reported a rather remarkable decrease in the rate of growth of aggregate employment. For example, Kannan and Raveendran (2012: 78, Table 1) show that employment (both male and female) hardly seems to have increased over the two NSSO rounds (2004–05 and 2009–10) in spite of substantial growth in the GDP. This is primarily because of a drastic decrease in the female work participation rate (WPR), which seems to have declined from 28.8% to 22.05% between 2004–05 and 2009–10. Such massive changes in WPRs are not unusual in the reported estimates. These are due to the uncertain and varying treatment of the workers in subsidiary status combined with those in principal status. A similar problem was found in the reported decline in employment between the 1993–94 and 1999–2000 NSSO rounds. Mazumdar and Sarkar (2008: Chapter 4) established that this was largely due to developments in the market for subsidiary labour, particularly the female agricultural workforce.

The conclusion to be derived from this research is that it is not possible to be clear about employment trends that talk of different types of labour—principal and subsidiary, and across gender and age groups. In the absence of such research, and since the detailed study of this topic is outside the scope of this paper, we shall assume that aggregate growth of measured employment does not affect seriously the composition of employment between sectors. Further, we would seek to minimise any problem that might arise from this assumption by confining ourselves to the sectoral distribution of employment of those in usual principal status only.

4.1 Dominance of Tertiary Sector

Table 5 shows the changes in the proportions of employment and output in different periods. It also shows the percentage of employment and output in different sectors in 2011–12. We see that the tertiary sector in India dominated the non-agricultural sector during the first decade of the post-reform period. In the slow growth witnessed at the beginning of the century, it was

Table 5: Changes in Employment and Output over Different Periods

Industry	Employment			Gross Domestic Product		
	1993–94 to 2004–05	2004–05 to 2011–12	2011–12	1993–94 to 2004–05	2004–05 to 2011–12	2011–12
	(in percentage points)		(in %)	(in percentage points)		(in %)
Agriculture	-3.9	-7.6	47.6	-4.4	-4.9	14.1
Manufacturing	1.1	0.7	12.8	0.6	0.4	15.7
Construction	2.7	4.3	10.7	0.9	0.2	7.9
Tertiary	3.1	2.4	28.4	8	5.4	58.4

Source: Authors' calculations from NSSO, various rounds.

second to construction as the major source of employment, but not so as regards the GDP. It is also clear from Table 5 that although construction has improved its relative share of employment from 2004–05 to 2011–12, it is the tertiary sector that has the highest share of employment in the non-agricultural sector, much more than construction and manufacturing, and even more so in the GDP.

One might be tempted to speculate that the leading role of the tertiary sector in growth might be due to the well-publicised growth of telecom services and their role in exports. Ajit Ghose (2015) has, however, conclusively proved that this is not so. Using input–output tables, Ghose concluded: "The contribution of growth of services exports to growth of services output was just 6 per cent for the period 1981–2000, which increased to 13 per cent in 2000–12" (2015: 68).

The dominance of services in Indian growth cannot be supported by the hypothesis that there is a worldwide trend in modern manufacturing to add a growing component of services to its finished product. Ghose's calculations from the input–output exercise showed that "intermediate demand (including splintering) for services from industry and agriculture has been small and declined between the periods. The rapid growth of services was clearly sustained very largely by the growth of domestic final demand" (2015: 68).

In low-income countries, consumer demand has a large component of services, since bulk-breaking and selling in small lots is important for low-income consumers (Bauer and Yamey 1957). But, the peculiarity of the Indian service sector is that the value added per worker is not unduly low as this effect would tend to produce. In fact, the relative value added per worker in the tertiary sector as a whole was much more than that in both manufacturing and construction in 2011–12, and grew rapidly over time (Table 8). The solution to this paradox is provided by the hypothesis proposed in Section 1: there is a product market segmentation in the Indian consumer markets such that services catering to low-income consumers coexist with those demanded by higher-income groups, and the juxtaposition of the two pulls up the mean value added per worker.

This becomes clearer when we break down the composition of the tertiary sector. The data on employment, value added and labour productivity by different categories of tertiary activity are presented in Tables 6, 7 (p 53) and Table 8, together with the aggregates for all three major sectors. The IT sector is not the only high-income employment generating industry in the tertiary sector. As pointed out earlier, trade, hotel and restaurants (in 2011–12) and transport, storage, and communication (from 2004–05) have substantially increased their relative productivity in relation to agriculture. In addition to IT, communication and the high-end part of the hotel and restaurants subsectors have begun to create high-income employment during 2000–12.

In spite of the recent spurt of the growth rate and increasing globalisation, the share of employment in manufacturing has increased only marginally (Table 6). Much of the fall in the share of the agricultural sector seems to have been absorbed by construction, while the share of employment in the tertiary

sector has continued to increase. The share of GDP in manufacturing has inched up by 0.4 percentage points, but the increase in the share of the tertiary sector is much more substantial in 2004–11. As a result, relative labour productivity of the tertiary sector—both as a whole and for its broad components—has increased significantly.

Table 6: Share of Employment of Broad Industrial Sectors, 1983 to 2011–12, Usual Principal Status (%)

		1983	1987–88	1993–94	1999–2000	2004–05	2011–12
1	Agriculture	64.9	62.5	61.1	58.5	54.6	47.0
2	Mining and quarrying	0.7	0.8	0.8	0.6	0.7	0.6
3	Manufacturing	11.3	11.5	11	11	12.1	12.8
4	Electricity, gas and water supply	0.4	0.4	0.5	0.3	0.3	0.5
5	Construction	2.7	4.2	3.7	4.9	6.4	10.7
6	Trade, hotels and restaurants	6.9	7.6	8	9.3	11.2	12.2
7	Transport, storage and communication	3	3	3.3	4.1	4.5	4.7
8	Financial, insurance, real estate and business services	0.7	0.7	1.1	1.3	1.8	2.8
9	Community, social and personal services	9.4	9.3	10.5	10	8.5	8.6
	Tertiary sector (6−9)	20.0	20.6	22.9	24.7	26.0	28.4
	Secondary sector (3−5)	14.4	16.1	15.2	16.2	18.8	24.0
	Primary sector (1−2)	65.6	63.3	61.9	59.1	55.3	47.6

Source: Authors' calculations from NSSO data, various rounds.

Table 7: Sectoral Shares of Gross Domestic Product, 1983 to 2011–12 (%)

| Industry		1983	1987–88	1993–94	1999–2000	2004–05	2011–12
1	Agriculture	34.9	29.8	28.1	23.4	19	14.1
2	Mining and quarrying	3	3.1	3.3	3	2.9	2.1
3	Manufacturing	14.7	15.1	14.7	14.9	15.3	15.7
4	Electricity, gas and water supply	1.6	1.9	2.2	2.3	2.1	1.9
5	Construction	6.9	6.9	6.8	6.7	7.7	7.9
6	Trade, hotels and restaurants	12.1	12.8	12.6	14.7	16.1	16.9
7	Transport, storage and communication	5	5.5	5.5	6.2	8.4	10.6
8	Financial, insurance, real estate and business services	9.1	10.9	13.3	14.2	14.7	18.1
9	Community, social and personal services	12.7	14	13.6	14.6	13.8	12.8
	Tertiary sector (6−9)	38.9	43.1	45	49.7	53	58.4
	Secondary sector (3−5)	23.2	23.9	23.6	23.9	25.1	25.5
	Primary sector (1−2)	37.9	33	31.4	26.4	21.9	16.2

Source: National Accounts Statistics (NAS), Government of India, various years.

Table 8: Relative Labour Productivity by Sectors, 1983 to 2011–12

| Industry	1983	1987–88	1993–94	2004–05	2011–12
Agriculture	100	100	100	100	100
Mining and quarrying	793	818	888	1,173	1,137
Manufacturing	243	275	289	362	386
Electricity, gas and water supply	734	999	963	2,017	1,233
Construction	476	345	396	345	238
Trade, hotels and restaurants	326	352	343	412	432
Transport, storage and communication	311	384	360	537	702
Financial, insurance, real estate and business services	2,409	3,249	2,617	2,345	1,956
Community, social and personal services	252	315	281	467	464
Tertiary	362	438	427	585	641

Relative labour productivity is calculated by taking value added per worker in agriculture as 100.
Source: NAS and NSSO, various rounds.

Figure 4: Kernel Density Function for the Primary Sector, 1983 to 2011–12
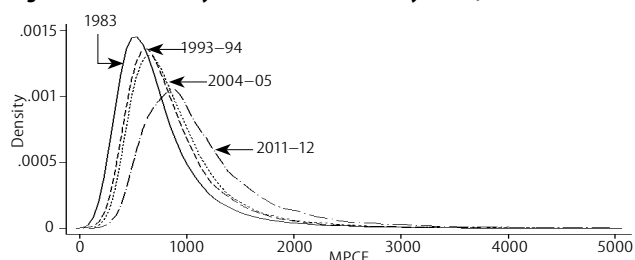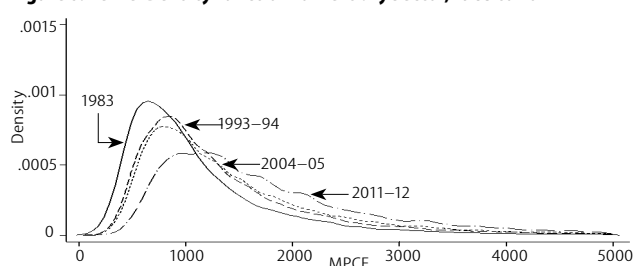
Source: Authors' calculations from NSSO data, various rounds.

Figure 5: Kernel Density Function for the Secondary Sector, 1983 to 2011–12
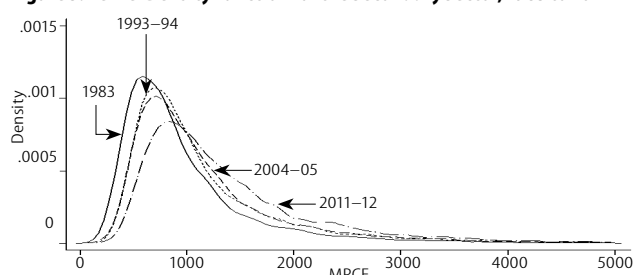
Source: Authors' calculations from NSSO data, various rounds.

Figure 6: Kernel Density Function for Tertiary Sector, 1983 to 2011–12

Source: Authors' calculations from NSSO data, various rounds.

5 Inequality by Industrial Sectors

Further insights into the determinants of inequality at the household level might be obtained by looking at inequality by broad industrial sectors. It has been hypothesised that growing inequality in the Indian economy is essentially due to the pattern of economic growth that consists of three interrelated phenomena:[9] (i) the growth process has been led by the tertiary rather than the manufacturing sector, both in terms of employment and value added; (ii) inequality has been significantly more pronounced in the tertiary sector; (iii) the relatively slow growth of manufacturing has been chiefly because of the peculiar phenomenon of the "missing middle" in the Indian economy.

The next section explores whether the accelerated growth rate of the economy in the third period (2004–11) has done anything to change the growth pattern in manufacturing mentioned in (iii). Here, we present evidence on the relative contribution of the three major sectors to aggregate household inequality in 2010–11, and examine if there has been any significant change over the years. Figures 4, 5 and 6 show the patterns of distribution of the APCE by the major sectors of activity of the household head for 2011–12.

While the visual impression conveyed by the KDF figures suggests that higher incomes have grown relatively more in

high APCE households, and more so in the tertiary sector we need to have a statistical measure of the contribution of each type of household (distinguished by the main industry of activity of the household) to the overall inequality of all-household welfare (as measured by the APCE). For this, it is not enough to get the weighted average of the inequality measures of the APCE in the three types of households. We need to rank the household in any activity not in terms of household welfare (APCE) in that particular activity, but in terms of household welfare of all activities taken together. This can be done by the computation of "pseudo-Ginis" for each household type.[10] The result for the four years of NSSO surveys is given in Table 9.

Table 9 shows that the pseudo-Gini values are the highest for the tertiary sector for all the years, but that they had declined somewhat in the last period.

Table 9: Contribution to Inequality of Households by Sector of Activity, 1983 to 2011–12

Sector of Activity	1983		1993–94		2004–05		2011–12	
	Pseudo-Gini	Gini	Pseudo-Gini	Gini	Pseudo-Gini	Gini	Pseudo-Gini	Gini
Primary	0.162	0.078	0.174	0.071	0.166	0.051	0.141	0.026
Secondary	0.461	0.081	0.446	0.076	0.33	0.065	0.253	0.057
Tertiary	0.552	0.191	0.555	0.235	0.525	0.262	0.464	0.229

Pseudo-Gini measures inequality in terms of household welfare, not in terms of activity in a particular sector, but in terms of the household welfare of activities in all sectors taken together. Source: Authors' calculations from NSSO data, various rounds.

However, the absolute value of the pseudo-Gini for the individual sectors is of less interest than their values relative to each other. The contribution of each sector k to inequality is equal to $S_k * G_k * R_k$, where $G_k * R_k$ is the pseudo Gini for sector k, S_k is the share of component k in total income, and G is the overall Gini for the economy (Lanjouw and Stern 1998: 390–91). It is seen that the $G_k * R_k$ for the tertiary sector is by far the highest in the latest NSSO round, as the share of income originating from this sector has been increasing. For both these reasons, the contribution of the tertiary sector to overall inequality has increased substantially.

The contribution of the different sectors to inequality can be explored by examining the relative contribution of the sectors to the quintiles of the total household APCE. Figures 7 and 8 show the employment share of the tertiary sector by quintile groups for rural and urban areas, respectively. The employment share of the tertiary sector slopes upwards, suggesting that higher-income groups are to be increasingly found in the tertiary sector, and more so in the highest quintile, especially in the urban areas. Although the absolute share of the tertiary sector in the highest quintile is much higher in the urban sector, the gap in this share between the pre-reform and the post-reform year is relatively higher in the rural areas. It is clear that tertiary employment growth—far from being an "absorber" of low-income labour that is unable to get into more productive sectors—is being driven by high incomes created in this sector.

## 6 Size Structure of Employment in Manufacturing

Our major finding so far is that the pattern of growth in India is led by the tertiary sector, both in terms of employment and productivity (and earnings). This is a major factor driving the

Figure 7: Employment Share of Tertiary Sector by Quintile Groups, Rural Areas
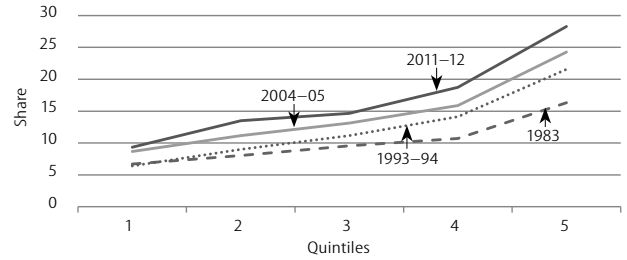
Source: Authors' calculations from NSSO data, various rounds.

Figure 8: Employment Share of Tertiary Sector by Quintile Groups, Urban Areas
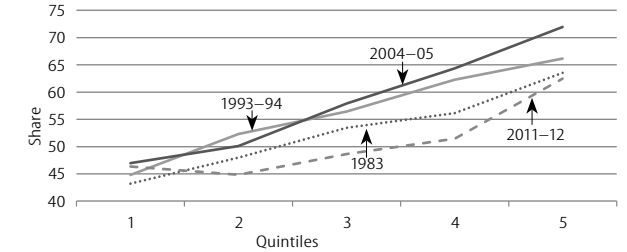
Authors' calculations from NSSO data, various rounds

phenomenon of growth with increasing inequality, and differs markedly from the growth process observed in other Asian countries, notably in the East Asian economies of Japan, Taiwan, and Korea. The hypothesis developed at length in our earlier work (Mazumdar and Sarkar 2008) is that it is the size distribution of enterprises in manufacturing, with the conspicuous "missing middle" responsible both for the slow growth of manufacturing and the unequal growth of the tertiary sector. Low-productivity manufacturing is the direct result of the bi-modal structure in the non-household subsector of manufacturing. This has discouraged adequate participation of the country in the booming export markets in recent decades and, at the same time, has led to a relatively sluggish development of the domestic market, in spite of India's large population. Our earlier work (Mazumdar and Sarkar 2013) talked of the size structure data for 2005–06. What do the latest available data show?

Figure 9: Size Structure of Manufacturing Employment in India, 2010–11
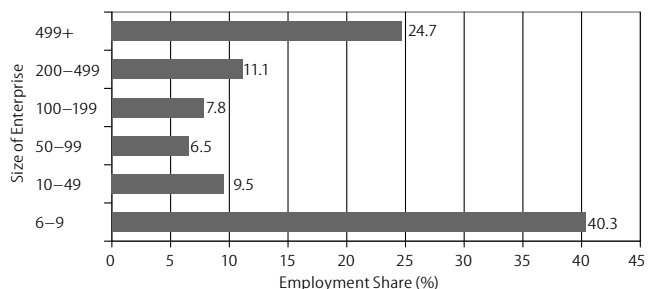
Source: Annual Survey of Industries (ASI), 2010–11 and Unorganised Manufacturing Sector Enterprises Survey, NSSO, 2010–11.

Figure 9 shows that in spite of the recent growth of newer industries in formal manufacturing, the basic size structure became more U-shaped with the shifting of employment share from the directory manufacturing establishments (DMEs; employment size of 6–9) to the highest size class of 499+ without affecting the employment share of middle size classes in any perceptible fashion.

The relative productivity of DMEs compared to the highest size class of 499+ remained unchanged at 8 in the last five years (Table 10). However, the productivity gap of smaller size classes within the organised sector, as compared to the highest size class of 499+, has lessened. Relative productivity of the 10–49 size class was one-fifth of highest size class in 2005–06. It got substantially reduced to one-third. In consequence, the productivity gap between the smallest size class in the organised sector and the DME widened noticeably. The reason for this changing phenomenon needs further investigation at a disaggregated level.

To conclude, the spurt in the growth rate of GDP from 2004 to 2009 has done little to alter the overall structure and dynamics of the Indian economy. Manufacturing in the non-household sector continues to be characterised by the conspicuous "missing middle." Thus, the conclusion made in Mazumdar and Sarkar (2013) that resultant low productivity of manufacturing is the proximate cause of the pattern of growth led by the tertiary sector remains unaltered. The growth of the tertiary sector and inequality in income distribution feed on each other.

7 Conclusions

The decade after the reforms were initiated (1993–2004) saw an increase in the relative growth of income at the upper end of the distribution. At the same time, the poorest quintile also gained, as compared to the next two quintiles. The period from 2004 to 2011 saw a reversal in this trend at the lower end, and the quintile growth rates displayed a more usual "ladder" pattern with successive quintile groups showing a higher growth rate than in the previous period.[11] While the overall Gini has remained more or less stable, there has been a sharp increase in the entropy measure GE(2), which is more sensitive to high incomes, especially in the rural areas.

Growth in India continues to be led by the tertiary sector. Higher inequality in this sector has continued to fuel the increase in inequality and, in fact, has increased in its intensity. The increase in the share of the tertiary sector in the top quintile group in urban India has been quite dramatic in 2011–12. Looking at the individual sub-sectors within the tertiary sector, this is partly due to the high-earning financial and public services coexisting with low-earning domestic services. We find that the dual structure exists even within the hotel, restaurant and trade sub-sector. This dualism is due to product market segmentation with poor man's goods coexisting with rich man's goods in the Indian consumer market. This is itself a result of unequal distribution of incomes.

The hypothesis advanced in our earlier work (Mazumdar and Sarkar 2013) was that this role of the tertiary sector in the

Table 10: Productivity of Size Classes
(₹)

Size Class	Labour Productivity	Relative Productivity, 499+=100
6–9	58,861	8
10–49	2,76,813	36
50–99	3,60,218	47
100–199	3,43,890	45
200–499	4,95,044	65
499+	7,61,051	100

All figures are in constant 2008–09 prices. Data for size classes of factories employing 10 or more workers is from ASI 2008–09. Figures for size class 6–9 are of DMEs for 2010–11. Source: ASI, 2008–09 and NSSO, 2010–11.

Indian growth experience can be causally connected to the peculiar pattern in manufacturing with its "missing middle," and with the large DME sector pulling down overall productivity in manufacturing with its dramatically low relative productivity. The latest data reveals that there has been relatively little change in this pattern. While the DME sector continues to account for 40% of all non-household manufacturing, the productivity gap between this sub-sector and the largest (499+) units continues to be 8:1 in favour of the latter. New developments in manufacturing seem to have affected the size structure only marginally. Further, while the productivity differential by size groups within the organised sector have been reduced somewhat, the relative productivity of the massive DME sector remains as low as ever.

The policy conclusion is clear. Indian manufacturing desperately needs to increase the skill level of its industrial labour force if the manufacturing sector has to play a more leading role in the growth of output and employment. The move away from tertiary sector-led growth to the historically common experience of growth led by manufacturing is also likely to be a significant factor in reducing inequality, particularly by increasing incomes relatively more in the middle of the distribution.

NOTES

1 Our earlier work (Mazumdar and Sarkar 2008, 2013; Sarkar and Mehta 2010) did not capture the effects of the higher growth trajectory India experienced since 2003–04. The gross domestic product (GDP) growth rate was over 9% for three consecutive years 2005–06 to 2006–07, but fell substantially to 6.2% partly due to global recession, and partly because of tighter monetary policy aimed at curbing inflation in 2011–12.

2 The detailed arguments and evidence for these hypotheses had been set out by Mazumdar (1959, 1973) on the development of the labour market for the textile mills in Bombay (now Mumbai).

3 This theme has been extensively developed in Mazumdar and Sarkar (2013).

4 Total household assets consist of "physical assets like land, buildings, livestock, agricultural machinery and implements, non-farm business equipment, all transport equipment, durable household goods and financial assets like dues receivable on loans advanced in cash or in kind, shares in companies and cooperative societies, banks, etc, national saving certificates and the like, deposits in companies, banks, post offices and with individuals" (NSSO 2005: 5).

5 Net worth is the total household assets net of the indebtedness of households. Debt is defined as consisting of cash loans payable at the time of survey and subsequently, net worth is total assets minus debt (NSSO 2005: 5).

6 We use four such rounds, 38th (1983), 50th (1993–94), 61st (2004–05), and 68th (2011–12).

7 There are some problems with the comparison of the average per capita expenditure (APCE) in the aggregate and per capita due to changes in the recall period of expenditure by the sample respondents (Deaton 1997). We assume that these changes have affected the growth at different levels of the APCE equally, so that the growth rates of the APCE at the five quintiles relative to one another are not affected.

8 The Chinese surveys of urban households in 2001 and 2005 are conducted by the Institute of Population and Labour Economics, Chinese Academy of Social Sciences.

9 See Mazumdar and Sarkar (2013), Mazumdar (2010), and the references cited therein.

10 See Mazumdar (2010: Appendix 4.A2) for an explanation of the procedure.

11 ADB (2012) documents the "ladder" pattern for Indonesia, Lao People's Democratic Republic, China and Sri Lanka.

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