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**Globalisation, Growth and  
Employment in the Organised Sector  
of the Indian Economy**

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# GLOBALISATION, GROWTH AND EMPLOYMENT IN THE ORGANISED SECTOR OF THE INDIAN ECONOMY

B.N. Goldar\*

## 1. Introduction

One of the most important forces that have shaped India's economy in the last two and a half decades is the process of globalization. This has been a world-wide phenomenon, and India could not have remained insulated. However, in the case of India, the globalization process was considerably aided by the far reaching economic policy reforms especially liberalization of trade and investment that India undertook since 1991.

The term 'globalization' is used widely, but often in different senses. Used in a broader sense, one may include under the ambit of globalization, the adoption of supra-national standards in economic arrangements in a country (Balakrishnan, 2010, p.167). A narrower definition of globalization, which is the one adopted for this paper, is to interpret it as a process of unification of world economic order through reduction of barriers such as tariffs, export fees and import quota (as given in *Wikipedia*). Removal of barriers to foreign investment would also be a part of the above definition. The economic reforms in India since 1991 are therefore a major contributor to the process of globalization in India insofar as these reforms enabled the India economy increasingly to get integrated with the world economy.

As mentioned above, the process of globalization was facilitated in India through economic policy changes. This was done with the belief that globalisation would contribute to achieving accelerated economic growth in India and help in creating employment opportunities by favouring labour-intensive growth inasmuch as India is believed to have a comparative advantage in unskilled-labour-intensive production. Did the expected effects take place? The answer is partly 'yes' and partly 'no'. The favourable effect of globalization on economic growth probably did take place, though this may have occurred with a lag and was confined to certain sectors of the economy. But, in terms of inducing a labour-intensive growth path in India and thus creating a lot of employment opportunities, globalization did not achieve much success.

In the first ten years following the large-scale trade and foreign investment liberalization initiated in 1991, there was no marked increase in the trend rate of economic growth in India. The trend rate of growth in real GDP (Gross Domestic Product) was about 5.0 per cent per annum during 1980-81 to 1990-91, which increased to about 5.6 per cent per annum during 1990-91 to 2000-01.<sup>1</sup> However, there was significant acceleration in economic growth in the 2000s.<sup>2</sup> The trend rate of growth in real GDP accelerated to about 7.4 per cent per annum in the period 2000-01 to 2010-11,<sup>3</sup> and if we consider the period

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2003-04 to 2010-11, the trend rate of economic growth was about 8.2 per cent per annum (well above the trend growth rate in the 1980s and 1990s).<sup>4</sup> Indeed, India is poised to become the fastest growing economy in the world in the near future, overtaking China in terms of the rate of economic growth.

Available data indicates that there has been growth acceleration in the organised sector where investment has boomed and foreign capital has flowed in. But the growth has not increased employment opportunities in a significant measure. Indeed, India's growth in the post-globalisation period has been led by skill-intensive services, and manufacturing too has become increasingly skill-intensive. This is arguably not in line with what was expected from globalization.

This paper makes an attempt to probe into these developments, and the factors behind them. Growth in output and employment in India's organized sector is examined in the context of globalization. The period covered for the study is 1980-81 to 2010-11. However, for certain analyses, a slightly shorter period has been considered due to lack of recent data or certain problems of data comparability. The industrial coverage is confined to organized manufacturing and organized services.

Two key questions addressed in the paper are: (a) Has globalization led to acceleration in output growth of organized manufacturing and organized services sectors, and (b) To what extent India's economic growth in the post-reform period has been services led, and how far this is attributable to trade and capital flows. A related issue investigated is the trends in employment in organized manufacturing and services, and whether there has been any improvement in employment growth rate in the post-globalization period. Some analysis of wage share in value added has also been done.

Several earlier studies of employment have noted that employment generation in the organized sector in the post-globalization era has been disappointing. This can be traced to the fact that the industrial structure has not undergone any major shift towards industries which are labour intensive, particularly intensive in use of unskilled labour. Since trade has been considerably liberalized, which should have created pressure for the industry structure to move towards industries in which the country has comparative advantage, one may raise the question, whether India actually has a comparative advantage in unskilled labour intensive products, and if not, what should be the policy direction to move in order to attain a much faster increase in employment opportunities to such workers. These are important issues to explore.

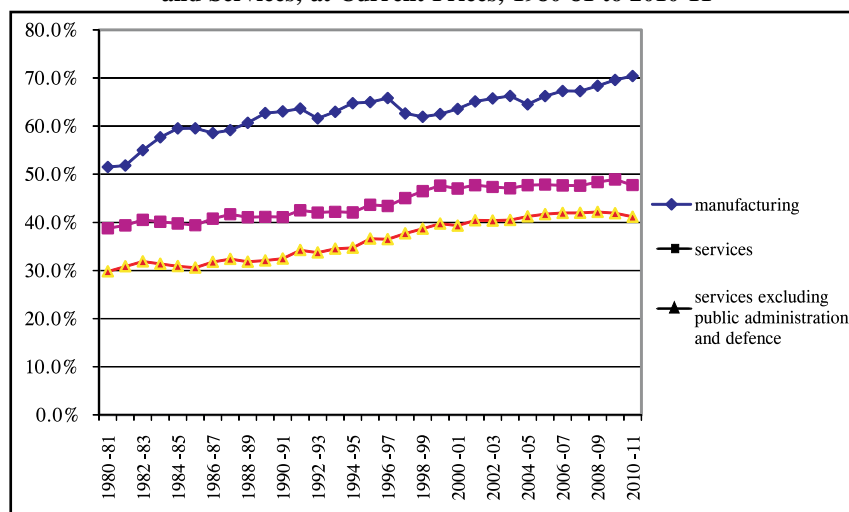
The rest of the paper is organized as follows. Section 2 analyses, at the aggregate level, trends in real GDP in organized manufacturing and services. The aim is to find out if there has been discernable growth acceleration in these sectors in the post-globalization period. Section 3 discusses the issue of rising share of services in aggregate GDP. It is based on the available literature, and no new analysis is presented. Section 4 undertakes an analysis of growth acceleration at disaggregated level, and in Section 5, an attempt is made to investigate how far the observed growth acceleration is connected with trade and investment flows. Section 6 analyzes trends in employment and wage share in value added

in organized manufacturing and services and also goes into the issue, whether India has a comparative advantage in unskilled labour intensive industries. Finally, Section 7 summarises and concludes.

## 2. Trends in Aggregate Real GDP in Organized Manufacturing and Services

As mentioned above, the analysis in the paper is confined to organised sector components of manufacturing and services. The organized sector forms a dominant part of Indian manufacturing in terms of value added. According to *National Accounts Statistics* (NAS) data, the share of the organized sector in total manufacturing value added (at current prices) increased from about 52 percent in 1980-81 to about 70 percent in 2010-11 (see Figure 1).

Figure 1  
Share of Organized Sector in Value Added, Manufacturing and Services, at Current Prices, 1980-81 to 2010-11

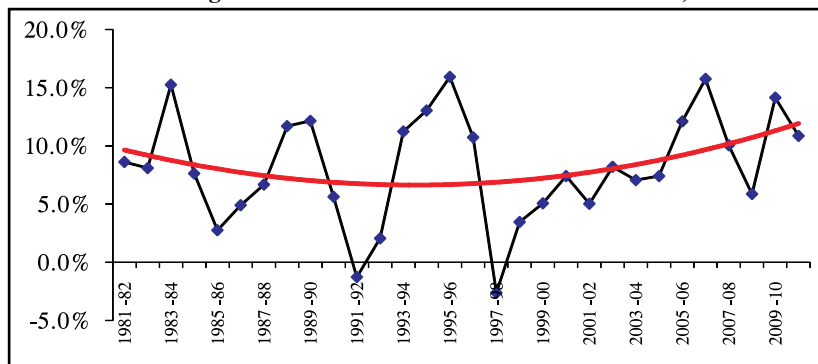


Source: Author's computations based on *National Accounts Statistics* (CSO)

In services, the organized sector component accounted for 39 percent of value added in 1980-81, which increased to about 48 percent in 2010-11. If public administration and defence (which are government services) are left out, the share of the organized sector in services was about 30 percent in 1980-81, which increased to about 41 percent in 2010-11. Evidently, unlike manufacturing, a fairly large part of the services (especially non-government services) is in the unorganized sector. Even by 2010-11, the organized sector component formed less than 50 percent of the value added in services.

How has the growth rate of real value added in organized manufacturing and organized services behaved over time in the period 1980-81 to 2010-11? This is investigated next. The growth rates in real value added in organized manufacturing and organized services<sup>5</sup> in different years during the period 1980-81 to 2010-11 are depicted in Figures 2 and 3. Growth rate in organized manufacturing has been subject to much greater inter-temporal variation than the growth rate in organized services. The growth rate in organized services

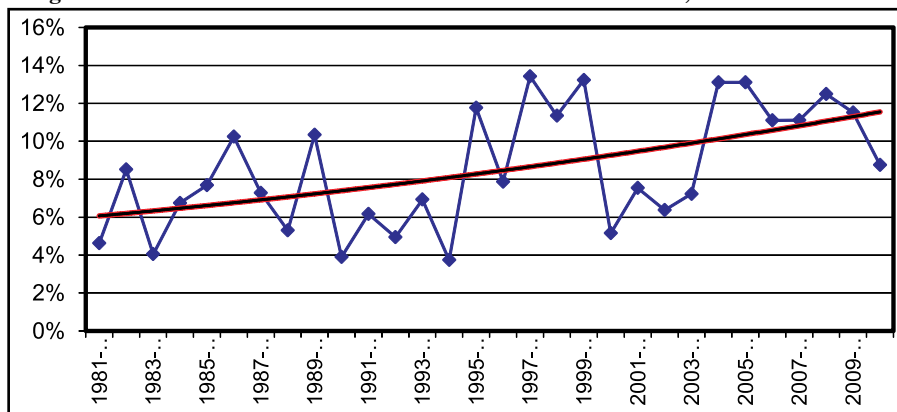
Figure 2  
**Organised Manufacturing - Growth Rate in Real Gross Value Added, 1981-82 to 2010-11**



Note: Polynomial trend fitted to annual growth rates.

Source: Author's computations based on *National Accounts Statistics* (CSO)

Figure 3  
**Organized Services - Growth Rate in Real Gross Value Added, 1981-82 to 2010-11**



Note: Polynomial trend fitted to annual growth rates.

Source: Author's computations based on *National Accounts Statistics* (CSO)

has noticeably accelerated over time. By contrast, the growth rate in organized manufacturing had decelerated in the 1990s and then accelerated in the 2000s.

Estimated trend growth rates in real value added of organized manufacturing and organized services in the periods 1980-81 to 1990-91, 1990-91 to 2000-01 and 2000-01 to 2010-11 are presented in Table 1. The trend growth rate in real value added in organized manufacturing dipped in the 1990s as compared to the 1980s. In the 2000s, on the other hand, there was a significant acceleration (consistent with Fig. 2). In organized services, by contrast, the growth rate significantly accelerated in the 1990s compared to the 1980s, and then accelerated further in the 2000s (consistent with Fig. 3). F-test has been carried out to ascertain if there has been statistically significant acceleration/deceleration in growth rates. The null hypotheses tested are: (a) the growth rate in period 1 (1980-81 to 1990-91) and period 2 (1990-91 to 2000-01) are equal, and (b) the growth rates in period 2 (1990-91

to 2000-01) and period 3 (2000-01 to 2010-11) are equal. In the case of organized services, both hypotheses get rejected. In the case of organized manufacturing, the first hypothesis does not get rejected at five percent level of significance, but the second one gets rejected. Thus, the dip in the growth rate in organized manufacturing in the second period vis-à-vis the first period is not found to be statistically significant. But, there is clear indication of a significant increase in the growth rate in real gross value added in organized manufacturing in the thirist period compared to the second period.

Table 1  
Trend Growth Rates, Real Gross Value Added in Organized  
Manufacturing and Organized Services, 1980-81 to 2010-11

<i>Period</i>	<i>Organized manufacturing</i>	<i>Organized services</i>
1: 1980-81 to 1990-91	0.0753 (18.6)	0.0643 (23.5)
2: 1990-91 to 2000-01	0.0620 (17.9)	0.0784 (33.5)
3: 2000-01 to 2010-11	0.0885 (21.8)	0.1017 (37.2)
Entire period, 1980-81 to 2010-11	0.0726 (57.7)	0.0808 (53.3)
Test: growth rate in period 1 = growth rate in period 2	F(1, 27)=3.87 Prob.=0.059	F(1, 27)=9.43 Prob.=0.005
Test: growth rate in period 2 = growth rate in period 3	F(1, 27)=15.37 Prob.=0.001	F(1, 27)=28.08 Prob.=0.0000

*Note:* Trend growth rates for sub-periods have been estimated by the kinked exponential model. Figures in parentheses are t-statistics.

*Source:* Author's computations based on *National Accounts Statistics* (CSO)

Analysis of break-points of growth undertaken by Balakrishnan (2010) based on the Bai-Perron test indicates that there was a break-point in manufacturing sector growth in 1994-95. For various services industries, the break-points are at 1994-95 or thereabout (varying across industries from 1992-93 to 1997-98). It is known that the Indian economy has achieved a high rate of growth since 2003-04. The annual growth rate in aggregate GDP exceeded nine percent in 2005-06, 2006-07 and 2007-08. There has a fall in the growth rate in real GDP in the next year. It fell below seven percent. Since 2008-09, the growth rate in real GDP has remained below nine percent per year. Accordingly, trend growth rates in real value added in organized manufacturing and organized services have been computed for four periods: 1980-81 to 1994-95, 1994-95 to 2003-04, 2003-04 to 2007-08 and 2007-08 to 2011-12. The terminal year of the last period has been taken as 2011-12 instead of 2010-11 because otherwise the last period will be too short. The estimated trend growth rates in the four periods are presented in Table 2. F-test has been carried out to ascertain if there has been statistically significant acceleration/deceleration in growth rate between successive periods.

The estimated trend growth rates in real value added in organized manufacturing in Table 2 show a significant dip in the rate of growth in the period 1994-95 to 2003-04 as compared to the period 1980-81 to 1994-95. This is reversed in the subsequent period. The growth rate in the period 2003-04 to 2007-08 is significantly higher than that in the period

1994-95 to 2003-04. The trend growth in the period 2007-08 to 2011-12 is lower than the trend growth rate in the period 2003-04 to 2007-08, but the gap is not statistically significant.

In the case of organized services, the growth rate increased significantly in the period 1994-95 to 2003-04 as compared to the period 1980-81 to 1994-95. The growth rates in the more recent periods, 2003-04 to 2007-08 and 2007-08 to 2011-12 were still higher. The growth rates in the periods, 2003-04 to 2007-08 and 2007-08 to 2011-12 were very close and there is no statistically significant difference.

Table 2  
Trend Growth Rates, Real Gross Value Added in Organized Manufacturing  
and Organized Services, 1980-81 to 2011-12, Alternate Break-points

<i>Period</i>	<i>Organized manufacturing</i>	<i>Organized services</i>
1: 1980-81 to 1994-95	0.0730 (31.6)	0.0660 (53.9)
2: 1994-95 to 2003-04	0.0604 (16.8)	0.0882 (46.4)
3: 2003-04 to 2007-08	0.1083 (11.0)	0.1068 (20.5)
4: 2007-08 to 2011-12	0.0878 (7.10)	0.1033 (15.7)
Entire period, 1980-81 to 2011-12	0.0731 (60.5)	0.0817 (54.1)
Test: growth rate in period 1 = growth rate in period 2	F(1, 27)=5.69 Prob.=0.024	F(1, 27)=62.18 Prob.=0.0000
Test: growth rate in period 2 = growth rate in period 3	F(1, 27)=15.11 Prob.=0.001	F(1, 27)=8.09 Prob.=0.008
Test: growth rate in period 3 = growth rate in period 4	F(1, 27)=1.04 Prob.=0.318	F(1, 27)=0.11 Prob.=0.745

*Note:* Trend growth rates for sub-periods have been estimated by the kinked exponential model. Figures in parentheses are t-statistics.

*Source:* Author's computations based on *National Accounts Statistics* (CSO)

In organized manufacturing, the growth rate in the third period (2003-04 to 2007-08) exceeded that in the first period (1980-81 to 1994-95) by over three percentage points per annum. In the case of organized services, the gap was larger at about four percentage points per annum. In the period since 2003-04, organized manufacturing has achieved an annual trend growth rate of about ten percent and organized services have achieved an annual trend growth rate of more than ten percent per annum.

The analysis presented above clearly shows that there was significant acceleration in the growth rate of real value added in both organized manufacturing and organized services in the 2000s, particularly in the period since 2003-04. This aspect is analysed further in Section 4, where the growth rates are considered at a disaggregated level. This is preceded by a discussion on the rising share of services in aggregate GDP in the next section.

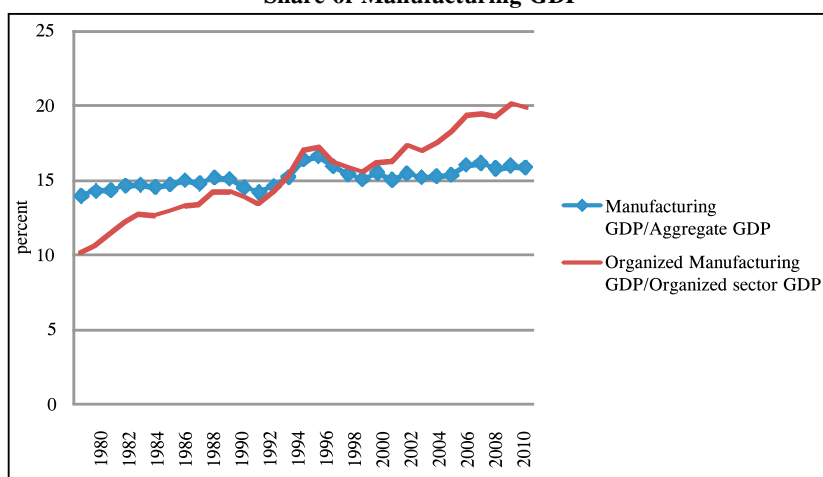
### 3. Rising Share of Services in GDP

It is well known that the share of services in GDP has significantly increased in India in the post-reform era, while the share of manufacturing in GDP has stagnated<sup>6</sup> (the shares of manufacturing and services in total GDP and the organized sector GDP are shown in Figures



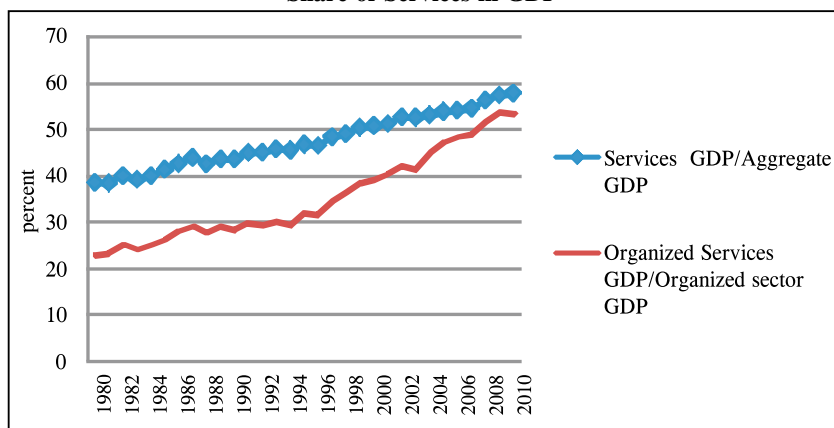
4a and 4b respectively). This aspect has received a good deal of attention of researchers, and much has already been written on this subject (see, e.g., Gordon and Gupta, 2004; Banga, 2005; Kochar, et al., 2006; Singh, 2006; Rakshit, 2009; Eichengreen and Gupta, 2009, 2011; and Dehejia and Panagariya, 2010). Therefore, this aspect is only briefly discussed here. No new empirical analysis is attempted. Rather, the findings of some earlier studies are briefly discussed.

Figure 4a  
Share of Manufacturing GDP



Source: Author's computations based on *National Accounts Statistics* (CSO)

Figure 4b  
Share of Services in GDP



Source: Author's computations based on *National Accounts Statistics* (CSO)

To discuss here briefly some of the earlier studies on the growth of India's services sector, Gordon and Gupta (2004) have noted the rapid growth and rising share of services in the Indian economy. They argue that several factors such as a high income elasticity of demand for services, increased input usage of services by other sectors, and rising exports were important in boosting services growth in the 1990s. According to them, the supply-

side factors including reforms and technological advances also played a prominent role in enhancing the growth rate of services. Singh (2006) too argues that an important reason for increase in share of services in GDP lies in higher than average income elasticity of demand (drawing on the work of Hansda, 2002). Banga (2005) observes that growth of external markets has played an important role in enabling a fast growth in services. She notes further that the growth of services has been uneven. Some services have grown fast, while others have grown relatively slower. She points out that the services that have grown relatively slowly are the ones with relatively greater employment potential, which according to her would explain why fast growth in services has not led to a fast growth in employment in services. Similar observations regarding low employment growth in services has been made by Rakshit (2009).

In a recent study, Eichengreen and Gupta (2011) observe that while the growth rate of services in India has been high, it started about 15 years ago from an unusually low base compared to the international norms. It is now converging to international norms, and whether a high rate of growth can be maintained in future will depend on the expansion of modern services (business services, communication and banking) as well as application of modern information technology to traditional services (retail and wholesale trade, transport and storage, public administration and defense).

Dehejia and Panagariya (2010) argue that productivity growth has contributed substantially to overall growth in services. They hypothesize that the productivity growth in services has originated at least in part from more effective use of previously underutilized labour. A particular issue they address is that service sector growth took off after external liberalization and internal deregulation despite the fact that these factors are not a direct restraint on the services sector. They offer two hypotheses: (a) growth in manufacturing which depended on liberalization increased demand for many services, and (b) improved access to tradable inputs used in services helped services grow faster. They claim to find empirical support for the first hypothesis and some suggestive support also for the second. In short, in their view, it is the favourable effects of economic liberalization on domestic manufacturing and access to imported manufactured goods that helped the services sector to grow rapidly.

The inter-linkage between manufacturing and services has been studied econometrically by Goldar and Mitra (2010). They have estimated the vector auto-regression model on the basis of sectoral annual growth rates with two lags. Following Litterman's Innovation Accounting Techniques, a Variance Decomposition analysis has been carried out. Their results show that at the tenth time horizon (medium to long run), 41.2 per cent of the forecast error variance in manufacturing sector growth is explained by trade-transport growth whereas manufacturing sector growth explains a higher proportion (92.1 per cent) of forecast error variance in the trade-transport growth at the same time horizon. Hence, it is argued that the causality runs from manufacturing to trade-transport, rather than the other way round. A similar result is found for the finance sector growth. It is only relating to public administration and other services that the causality runs from these to the manufacturing sector, possibly reflecting

the impact of the policy pertaining to the downsizing of the public sector and the closure of the public sector units in manufacturing.

Subramanian (2008) draws attention to a different type of linkage between certain services and unskilled labour based manufacturing. He terms it as the Indian version of the Dutch Disease problem. He points out that the surge in the IT sector has led to sharp increase in wages of highly skilled employees (supervisors, designers, managers, etc) and this factor directly, or indirectly through rupee appreciation, tends to reduce the profitability of unskilled labour based manufacturing. In other words, one may argue that the country had to pay a price for the surge in the IT sector in the form of lowered performance level of labour intensive manufacturing industries, such as textiles.

There is some literature that clearly points to a significant contribution made by productivity growth to the growth in services sector output. This is highlighted by Dehejia and Panagariya (2010), as mentioned above. Estimates of total factor productivity (TFP) growth presented in Bosworth, Collins and Virmani (2006), Bosworth and Collins (2007) and Verma (2008) clearly indicate that TFP growth in services has been much faster than that in agriculture, industry or manufacturing. For the period 1980 to 2004, the estimated growth rates of TFP by Bosworth, Collins and Virmani (2006) are: Agriculture (1.1% per annum), Manufacturing (1.5% per annum), Industry (1% per annum) and Services (2.9% per annum). Similar estimates have been reported by Bosworth and Collins (2007) and Verma (2008). Goldar and Mitra (2010) divided the services sector into four parts and presented estimates of TFP growth for the four parts. The growth rate in TFP for the period 1980-81 to 2006-07 is found to be in the range of 3 to 4 percent per annum in all four parts of the services sector. Evidently, there has been significant TFP growth in various segments within services and this has contributed to the sector's growth.

How important is productivity growth as an explanation of the excellent growth performance of services vis-à-vis other explanation offered in the literature? Verma (2008) examines trade versus TFP growth as alternative explanations for the rising share of services in GDP in India. A simple simulation model is used. The counterfactual results indicate that TFP growth was probably a much more important cause of the growing share of services output in GDP in India than the increases in services trade.

Two points may be highlighted here on the basis of the above discussion. First, even though services have grown rapidly and have come to occupy a dominant share of India's GDP, it would perhaps be incorrect to view manufacturing growth as being driven by services sector growth. Rather, it would be more meaningful to think of manufacturing growth as the driver of growth in some important services sectors. Secondly, the services sector growth is attributable to a large extent to the productivity advances made by the services sector. Are these productivity advance connected with the process of globalization, or are these rooted in some other factors independent of the process of globalization is an important question to investigate.

#### 4. Analysis of Growth Acceleration at Disaggregated Level

Analysis in Section 2 above has shown that there was significant growth acceleration in Organized Manufacturing and Organized Services in the 2000s. This is examined further in this section at a disaggregate level. Growth in manufacturing industries is examined first, followed by an analysis of growth in services.

##### 4.1 Growth Acceleration in Manufacturing Industries

Table 3 shows the growth rates in real value added of two-digit manufacturing industries (organised sector) in the periods 1980-81 to 1990-91, 1990-91 to 2000-01 and 2000-01 to 2007-08. These estimates are based on ASI (*Annual Survey of Industries*, Central Statistical Office, Government of India) data.<sup>7</sup> Out the 22 two-digit industries studied, in most cases, there was a fall in the growth rate of value added in the period 1990-91 to

2000-01 as compared to the pace of growth during 1980-81 to 1990-91. A statistically significant fall in growth rate is found for six cases. Similarly, comparison of growth rates for the periods 1990-91 to 2000-01 and 2000-01 to 2007-08 reveals that there was an increase in the rate of growth in the latter period in most cases. A significant acceleration in the growth rate of real value added took place in the period 2000-01 to 2007-08 in six cases out of 22. It appears therefore that a fairly large part of the organized manufacturing industry experienced acceleration in output growth in the period since 2000-01.

Table 3  
Growth Rate in Real Value Added in Organized Manufacturing Industries, Two-Digit

NIC code	Trend growth rates, three periods			Test: growth rate in period 1 = growth rate in period 2	Test: growth rate in period 2 = growth rate in period 3
	1: 1980-81 to 1990-91	2: 1990-91 to 2000-01	3: 2000-01 to 2007-8		
15.	0.093 (8.86)	0.053 (5.56)	0.056 (3.36)	F(1,24)=5.2 Prob.=0.03	F(1,24)=0.02 Prob.=0.90
16.	0.072 (5.84)	0.060 (5.38)	0.023 (1.19)	F(1,24)=0.37 Prob.=0.55	F(1,24)=1.76 Prob.=0.20
17.	0.054 (6.21)	0.057 (7.38)	0.065 (4.79)	F(1,24)=0.05 Prob.=0.82	F(1,24)=0.16 Prob.=0.69
18.	0.227 (11.73)	0.115 (6.63)	0.031 (1.05)	F(1,24)=11.68 Prob.=0.002	F(1,24)=3.73 Prob.=0.065
19.	0.119 (10.36)	0.036 (3.47)	0.069 (3.85)	F(1,24)=18.28 Prob.=0.0003	F(1,24)=1.73 Prob.=0.20
20.	0.045 (2.85)	-0.064 (-4.51)	0.110 (4.41)	F(1,24)=16.43 Prob.=0.0005	F(1,24)=24.26 Prob.=0.0001
21.	0.061 (5.53)	0.041 (4.22)	0.079 (4.57)	F(1,24)=1.06 Prob.=0.31	F(1,24)=2.30 Prob.=0.14
22.	0.019 (1.21)	0.002 (0.14)	0.059 (2.43)	F(1,24)=0.40 Prob.=0.53	F(1,24)=2.73 Prob.=0.11
23.	0.172 (7.21)	0.019 (0.89)	0.204 (5.45)	F(1,24)=14.29 Prob.=0.0009	F(1,24)=12.11 Prob.=0.002

24.	0.107 (11.36)	0.083 (9.87)	0.032 (2.17)	F(1,24)=2.22 Prob.=0.15	F(1,24)=5.99 Prob.=0.022
25.	0.111 (15.27)	0.107 (16.47)	0.047 (4.08)	F(1,24)=0.10 Prob.=0.75	F(1,24)=14.13 Prob.=0.001
26.	0.101 (10.16)	0.053 (6.06)	0.111 (7.11)	F(1,24)=7.79 Prob.=0.01	F(1,24)=6.62 Prob.=0.02
27.	0.052 (3.93)	0.066 (5.63)	0.106 (5.12)	F(1,24)=0.43 Prob.=0.52	F(1,24)=1.79 Prob.=0.19
28.	0.053 (5.20)	0.068 (7.42)	0.139 (8.63)	F(1,24)=0.71 Prob.=0.40	F(1,24)=9.55 Prob.=0.005
29.	0.049 (4.45)	0.045 (4.49)	0.071 (4.10)	F(1,24)=0.06 Prob.=0.80	F(1,24)=1.16 Prob.=0.29
30.	0.143 (7.24)	0.079 (4.46)	0.186 (6.01)	F(1,24)=3.67 Prob.=0.067	F(1,24)=5.96 Prob.=0.022
31.	0.087 (6.07)	0.061 (4.75)	0.111 (4.91)	F(1,24)=1.15 Prob.=0.29	F(1,24)=2.40 Prob.=0.13
32.	0.183 (13.34)	0.139 (11.26)	0.152 (7.10)	F(1,24)=3.70 Prob.=0.066	F(1,24)=0.22 Prob.=0.65
33.	0.096 (6.95)	0.096 (7.79)	0.115 (5.30)	F(1,24)=0.00 Prob.=0.99	F(1,24)=0.35 Prob.=0.56
34.	0.072 (5.25)	0.086 (6.96)	0.148 (6.84)	F(1,24)=0.33 Prob.=0.57	F(1,24)=4.06 Prob.=0.055
35.	0.060 (4.83)	0.047 (4.24)	0.116 (5.98)	F(1,24)=0.37 Prob.=0.55	F(1,24)=6.26 Prob.=0.020
36.	0.107 (4.79)	0.149 (7.44)	0.068 (1.94)	F(1,24)=1.21 Prob.=0.28	F(1,24)=2.65 Prob.=0.12

*Note:* Trend growth rates for sub-periods have been estimated by the kinked exponential model.

*Source:* Author's computations based on *Annual Survey of Industries (CSO)*

Figures in parentheses are t-statistics.

*Industry codes and description*

15. Manufacture of Food Products and Beverages
16. Manufacture of Tobacco Products
17. Manufacture of Textiles
18. Manufacture of Wearing Apparel Dressing and Dyeing of Fur
19. Tanning and Dressing of Leather Manufacture of Luggage, Handbags, Saddlery, Harness and Footwear
20. Manufacture of Wood and Products of Wood and Cork, Except Furniture, Manufacture of Articles of Straw and Plating Materials
21. Manufacture of Paper and Paper Products
22. Publishing, Printing and Reproduction of Recorded Media
23. Manufacture of Coke, Refined Petroleum Products and Nuclear Fuel
24. Manufacture of Chemicals and Products
25. Manufacture of Rubber and Plastic Products
26. Manufacture of Other Non-Metallic Mineral Products
27. Manufacture of Basic Metals
28. Manufacture of Fabricated Metal Products, Except Machinery and Equipments
29. Manufacture of Machinery and Equipments N.E.C

30. Manufacture of Office, Accounting and Computing Machinery
31. Manufacture of Electrical Machinery and Apparatus N.E.C.
32. Manufacture of Radio, Television and Communication Equipments and Apparatus
33. Manufacture of Medical, Precision and Optical Instruments, Watches and Clocks
34. Manufacture of Motor Vehicles, Trailers and Semi-Trailers
35. Manufacture of Other Transport Equipment\
36. Manufacture of Furniture; Manufacturing N.E.C.

A similar pattern is observed when growth trends are studied at four-digit industry level.<sup>8</sup> Table 4 shows the trend growth rates for the periods 1990-91 to 2000-01 and 2000-01 to 2007-08. In 59 cases out of the 97 industries (or industry groups) studied, the trend growth rate was relatively higher in the period 2000-01 to 2007-08 compared to the period 1990-91 to 2000-01, and in 24 cases, the difference in the growth rate is statistically significant. Again, it is evident that a fairly large part of the organized manufacturing industry experienced acceleration in output growth in the period since 2000-01.

Table 4  
Estimated Trend Growth Rates, Four-digit Manufacturing Industries

<i>Industry code</i>	<i>Growth rate, 1990-01 to 2000-01</i>	<i>Growth rate, 2000-01 to 2007-08</i>	<i>Test of equality of coeff.</i>	<i>Industry code</i>	<i>Growth rate, 1990-01 to 2000-01</i>	<i>Growth rate, 2000-01 to 2007-08</i>	<i>Test of equality of coeff.</i>
1511	0.076	0.125	NS	1512	0.064	-0.105	SG
1513	0.144	0.078	NS	1514	0.071	0.038	NS
1520	0.125	-0.003	SG	1531	0.059	0.083	NS
1532	0.094	0.030	NS	1533	0.075	0.101	NS
1541	0.045	0.097	NS	1542	0.058	0.021	NS
1543	0.136	0.130	NS	1544 + 1549	0.004	0.025	NS
1551	0.023	0.133	SG10	1552	0.121	0.158	NS
1553	-0.005	0.193	SG	1554	0.106	0.205	NS
1600	0.066	0.023	SG	1711	0.036	0.037	NS
1712	0.100	0.111	NS	1721	0.139	0.161	NS
1722	0.106	0.152	NS	1723	0.036	0.081	NS
1729	0.175	0.122	NS	1730	0.140	0.150	NS
1810	0.088	0.047	NS	1820	-0.058	0.132	NS
1911	-0.061	0.062	SG	1912	0.139	0.066	NS
1920	0.026	0.078	NS	2010	-0.123	0.078	SG
2021	-0.060	0.090	SG	2022	0.001	0.125	NS
2023	-0.0023	0.107	SG	2029	0.005	0.023	NS
2101	0.026	0.080	SG	2102	0.104	0.055	NS
2109	0.174	0.041	SG	2211 + 2219	-0.136	-0.059	NS
2212	0.020	0.079	NS	2221	0.058	0.107	NS
2222	-0.009	0.225	SG	2310	-0.011	0.109	SG10
2320	0.029	0.208	SG	2411	0.081	0.009	SG
2412 + 2421	0.046	0.015	NS	2413	0.210	0.019	SG
2422	0.012	0.047	NS	2423	0.054	0.092	NS
2424	0.066	0.085	NS	2429	0.046	0.041	NS

2511	0.075	0.015	SG	2519	0.063	0.005	NS
2520	0.101	0.028	SG	2610	0.085	0.033	SG10
2691	0.053	0.046	NS	2692 + 2693	0.027	0.081	NS
2694	0.056	0.147	SG	2695	0.127	0.053	NS
2696	0.118	0.047	SG10	2699	0.011	0.034	NS
2720	0.072	0.115	NS	2731 + 2732	0.047	0.141	SG
2811	-0.021	0.177	SG	2812	-0.049	-0.017	NS
2813 + 2911	0.033	0.136	SG	2891 + 2892	0.083	0.146	SG
2893	-0.000	0.052	SG10	2899	0.214	0.141	NS
2912 + 2913 + 2914 + 2915	0.053	0.089	NS	2919 + 2923 + 2927 + 2929	0.067	0.041	NS
2921	0.060	0.016	NS	2922	-0.050	0.073	SG10
2924	0.028	0.193	SG	2925 + 2926	-0.010	0.065	SG10
2930 + 3150	0.052	0.015	NS	3000	0.149	0.159	NS
3110 + 3120	0.003	0.162	SG	3130	0.054	0.010	NS
3140	0.097	0.035	NS	3190	0.174	0.134	NS
3210	0.235	0.154	SG	3220 + 3230	0.075	0.150	NS
3311 + 3312 + 3313	0.113	0.134	NS	3320	0.120	0.058	NS
3330	0.026	0.079	NS	3410 + 3420 + 3430	0.083	0.151	SG10
3511 + 3512	0.058	0.108	NS	3520	-0.105	0.054	SG
3530	-0.022	0.012	NS	3591	0.106	0.169	SG10
3592	0.029	-0.002	NS	3599	-0.022	-0.002	NS
3610	0.100	0.056	NS	3691	0.206	0.116	NS
3692	-0.184	-0.100	NS	3693	0.110	-0.031	SG10
3694 + 3699	0.231	0.008	SG				

*Notes:* Trend growth rates for sub-periods have been estimated by the kinked exponential model. The table shows the 4-digit NIC codes. The description of industries is provided in the National Industrial Classification-1998, which is available in the website of the Ministry of Statistics and Programme Implementation, Government of India.

NS= the difference in the growth rates between the two periods is not statistically significant.

SG= the difference in the growth rates between the two periods is statistically significant at five percent level.

SG10= the difference in the growth rates between the two periods is statistically significant at ten percent level.

*Source:* Author's computations based on *Annual Survey of Industries (CSO)*

#### **4.2 Growth Acceleration in Services**

It has been noted in Section 2 above that growth in real value added in organised sector services accelerated significantly in the 1990s, and accelerated further the 2000s. The experience, however, differed across different categories of services. Table 5 presents the

Table 5  
**Trend Growth Rates in Value Added in Various Services, 1980-81 to 2010-11, by sub-period**

Service	Trend growth rates, three periods			Test: growth rate in period 1 = growth rate in period 2	Test: growth rate in period 2 = growth rate in period 3
	1: 1980-81 to 1990-91	2: 1990-91 to 2000-01	3: 2000-01 to 2010-11		
Trade	0.025 (3.33)	0.189 (29.76)	0.128 (17.32)	F(1,27)=176.5 Prob.=0.000	F(1,27)=23.96 Prob.=0.000
Hotels and restaurants	0.074 (7.22)	0.199 (22.60)	0.116 (11.34)	F(1,27)=52.93 Prob.=0.000	F(1,27)=23.08 Prob.=0.0001
Railways	0.041 (15.70)	0.029 (12.88)	0.079 (29.85)	F(1,27)=7.88 Prob.=0.009	F(1,27)=127.43 Prob.=0.000
Transport by other means	0.037 (8.30)	0.033 (8.59)	0.078 (17.55)	F(1,27)=0.32 Prob.=0.57	F(1,27)=37.37 Prob.=0.000
Storage	0.067 (7.04)	0.022 (2.68)	0.083 (8.69)	F(1,27)=8.11 Prob.=0.008	F(1,27)=14.69 Prob.=0.0007
Communication	0.043 (7.85)	0.125 (26.34)	0.211 (38.07)	F(1,27)=77.75 Prob.=0.000	F(1,27)=86.66 Prob.=0.000
Banking and insurance	0.105 (22.24)	0.080 (19.93)	0.108 (22.99)	F(1,27)=9.64 Prob.=0.004	F(1,27)=12.62 Prob.=0.001
Real estate, ownership of dwelling and business services	0.126 (20.28)	0.245 (46.23)	0.152 (24.45)	F(1,27)=133.97 Prob.=0.000	F(1,27)=82.33 Prob.=0.000
Public administration and defence	0.063 (12.75)	0.052 (12.27)	0.064 (12.77)	F(1,27)=1.83 Prob.=0.19	F(1,27)=1.85 Prob.=0.19
Other services	0.065 (25.45)	0.072 (32.96)	0.068 (26.51)	F(1,27)=2.76 Prob.=0.11	F(1,27)=1.06 Prob.=0.31

Notes: Trend growth rates for sub-periods have been estimated by the kinked exponential model. Figures in parentheses are t-statistics.

Source: Author's computations based on *National Accounts Statistics* (CSO)

estimated trend growth rates in real added in various categories of services (organized sector) in the periods, 1980-81 to 1990-91, 1990-91 to 2000-01 and 2000-01 to 2010-11 based on the *National Accounts Statistics* (NAS) data.<sup>9</sup> Interestingly, in several services (e.g., trade), the growth rate in real value added went up significantly in the 1990s and then decelerated in the 2000s. In trade, hotels and restaurants, and real estate, ownership of dwellings and business services, the growth rate in real value added in the 2000s was quite high, though these were lower than the growth rate achieved in the 1990s. On the other hand, in railways, other transport, storage, and communication, there was a marked increase in the rate of growth in real value added in the 2000s. Evidently, the growth acceleration of the services sector in the 2000s was confined to only certain categories of services.

From an analysis of the growth rates of various services, it appears that the services sector growth acceleration in the 1990s was led by trade, hotels and restaurants, communication, and business services. Interestingly, banking and insurance did not experience any acceleration in the growth of value added in the 1990s. Rather, the growth rate came down. The acceleration of the 2000s seems to have emerged mainly from growth of transport (railways and others)



and communication. The growth rate in banking and insurance in the 2000s exceeded that in the 1990s. But, the difference is not much. Also, the growth rate in the 2000s is only marginally higher than that in the 1980s.

As noted above, the acceleration in the growth rate of services in the 2000s is primarily traceable to railways and other transport, and communication. While the rapid growth in communication probably has a lot to do with globalization, it is doubtful if the same can be said for transport services. It would not be wrong to say that the rapid growth in value added in railways and other transport is not directly a result of globalisation. One obviously cannot attribute the growth in transport services in India to the growth in India's international trade in services. Nor is foreign direct investment an important causative factor. Globalization may have, however, indirectly contributed to the growth of transport services insofar as globalization helped the manufacturing sector grow fast and the increased demand for transport services by manufacturing contributed to accelerated growth of the transport services industry.

## **5. Trade, FDI and Growth**

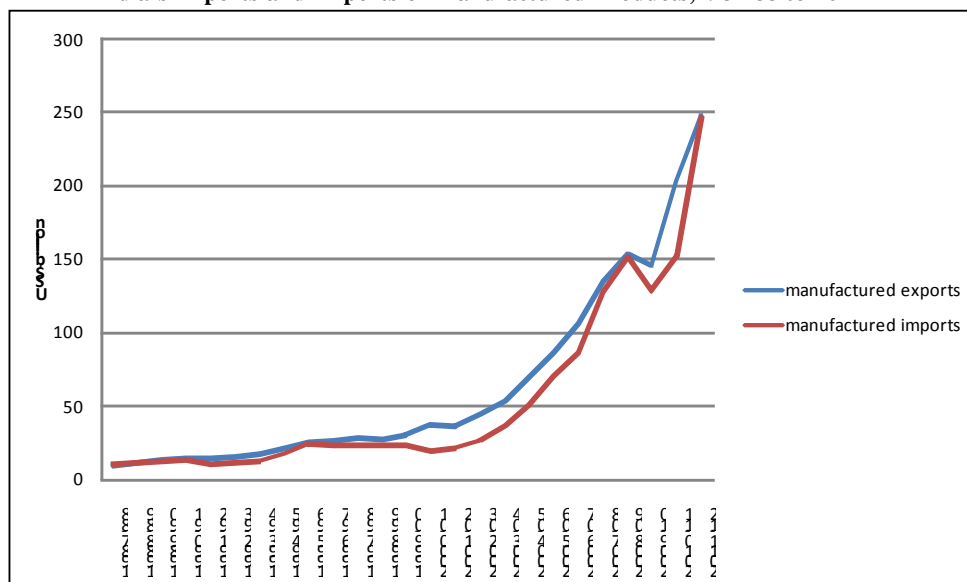
In the two decades of economic reforms in India, there have been large increases in trade of manufactures and trade in services. Also, annual inflow of foreign direct investment in the organized manufacturing and organized services sectors has increased many folds. It would not be wrong to think that the acceleration in output growth in organized manufacturing in the 2000s is attributable at least in part to the growth in trade of manufactures and foreign direct investment in manufacturing. The connection between growth in organized services and globalization is less obvious but going by the analysis of Dehejia and Panagariya (2010), globalization appears to have played a significant role in boosting up the growth rate of organized services. Some analysis of trade and growth in manufacturing is presented in Section 5.1, following which trade and growth in services is considered in Section 5.2. The effect of FDI is considered in Section 5.3.

### ***5.1 Trade and Growth in Manufacturing***

Figure 5 shows the trends in manufactured products exports and imports (in US \$ billion) in the period 1987-88 to 2011-12. It is evident that since 2001-02, there has been a marked increase in both manufactured exports and imports. There was a dip in manufactured exports and imports in 2009-10 because of the global economic crisis. Both exports and imports have recovered significantly in subsequent years.<sup>10</sup>

How are the exports and imports of manufactures expected to impact growth? Exports help in raising the growth of industries by providing additional markets for domestically produced goods. Imports have an opposite effect in terms of market opportunities. But, the fact that imports of manufactures have increased almost as much as exports does not imply that increases in imports have neutralized the favourable effects of increases in exports. Rather, even if both exports and imports increase by the same amount, there are grounds to believe that a favourable effect on growth will occur. First, import competition may have a favourable effect on productivity of domestic industrial firms and thus help

Figure 5  
**India's Exports and Imports of Manufactured Products, 1987-88 to 2011-12**



Source: Author's computation based on trade data taken from Reserve Bank of India (RBI) publications (basic source of data is DGCI&S, Ministry of Commerce and Industry, Government of India)

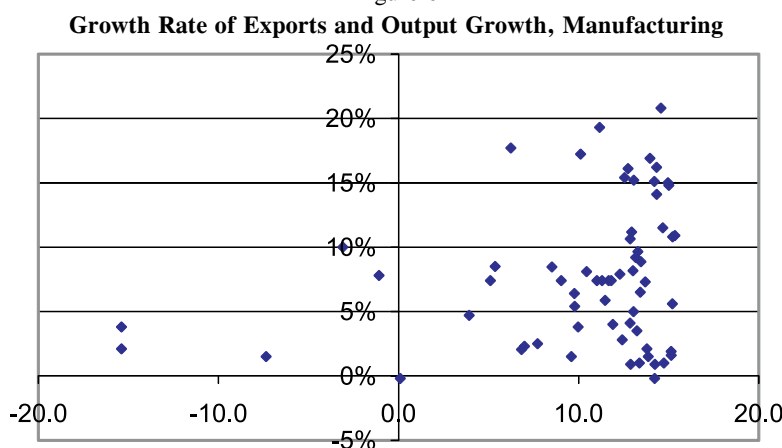
them grow. Secondly, imports of intermediate and capital goods are expected contribute to productivity advance in user industries and thus lead to higher rate of output growth in such industries. There is empirical basis for both assertions. Several studies have found that the lowering of industrial tariffs had a favourable effect on industrial productivity (e.g. Goldar and Kumari, 2003; Topalova, 2004; and Sivadasan, 2006, 2009). Mitra and Ural (2006) find that both tariff cuts and easing of non-tariff barriers have had a favourable effect on industrial productivity. In a recent study, Topalova and Khandelwal (2011) find that both lowering of tariff on final goods and improved access to inputs due to lowering of tariff on intermediate inputs have increased firm-level productivity in India. They note that while the pro-competitive effects of the lowering of tariffs led firms to become more efficient, the larger impact probably came from increased access to foreign inputs. Based on the findings of studies mentioned above and the observed trends in trade, it seems reasonable to argue that the growth in trade in manufactures have contributed significantly to the growth of the organized manufacturing sector in India.

While the acceleration in manufacturing sector growth in the 2000s can be attributed in part to the rapid growth in trade in manufactures, how would one explain the deceleration in manufacturing sector growth in the 1990s when this period too saw an increase in trade in manufactures? A possible line of argument one can advance involves connecting the effect of trade reform on industrial productivity to industrial restructuring and allocative efficiency. Hashim et al. (2009) call attention to a possible 'J curve of liberalization and productivity' and find support for their hypothesis in the estimates of TFP they obtain for organized manufacturing – a much higher growth rate in TFP in the period 2002-03 to 2005-06 as

compared to the periods 1992-93 to 1997-98 and 1998-99 to 2001-02. According to them, the structural transformation arising from a large trade reform would cause a slowdown in productivity growth initially, which will pick up later. This is due broadly to obsolescence of product lines and capital used to produce it (which would still be a part of measured capital), the gradual adoption and spread of new technology and the diversion of human resource for learning. This line of argument would be consistent with the finding of a deceleration in manufacturing growth in the 1990s and acceleration later.<sup>11</sup>

To examine the effect of trade on growth further, the growth in exports and the increase in the intensity of use of imported intermediate inputs have been computed for various input-output sectors belonging to manufacturing. The period considered is from 1993-94 to 2006-07.<sup>12</sup> The input-output table (and import flow tables) for these two years have been utilized for this purpose. An attempt has been made to find out if these bear any correlation with the growth rates of output in various manufacturing industries. The analysis reveals that the growth in exports does bear a significant positive correlation (coefficient=0.24) with the growth rate in real value added of the corresponding industries (organized sector component) in the period 2000-01 and 2007-08. This is depicted in Figure 6.

Figure 6



*Note:* Growth rate in exports in the period 1993-94 to 2006-07 is shown along x-axis. Growth rate in real value added (organized industry) in the period 2000-01 to 2007-08 is shown along y-axis. The data source is explained in the text.

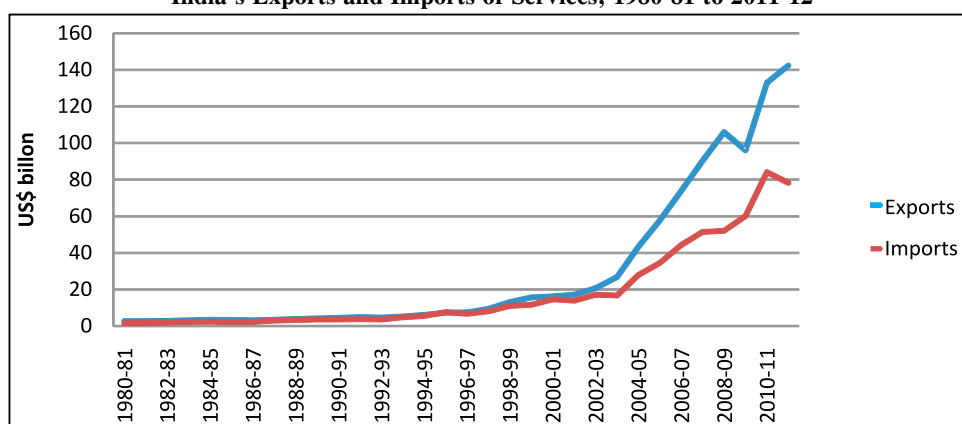
As regards use of imported inputs, the ratio of imported inputs to total intermediate input used has increased in most industries. On average, the intensity was 12 percent in 1993-94 which increased to 28 percent in 2006-07. As mentioned earlier, some studies have found evidence to indicate that increased access to imported intermediate inputs has helped Indian manufacturing industries improve productivity, and this should have contributed to growth. However, the analysis based on input-output data does not show a clear positive correlation between the increase in imported intermediate input intensity and the rate of growth of real value added. At the same time it may be noted that the ratio of imported intermediate input out of total intermediate inputs used in 2006-07 and the growth rate of output in the 2000s

bears a positive correlation (coefficient = 0.09). Thus, though the evidence is not strong, there is support for the view that globalization might have benefited industrial growth through improved access to intermediate inputs.

### 5.2 Trade and Growth in Services

Figure 7 shows the value of services exports expressed in billions of US dollars in the period 1980-81 to 2011-12 (data on services exports and imports have been taken from RBI publications; the data for 2011-12 are preliminary). It is evident that significant increases in services exports and imports took place since the mid-1990s. The increases since 2002-03 have been relatively much larger. Also, increases in export in the 2000s have been far greater than those in imports. Between 2000-01 and 2011-12, services exports increased by about US\$ 126 billion (from about US\$ 16 billion to US\$ 142 billion). The increase in services imports in this period was about US\$ 63 billion.

Figure 7  
India's Exports and Imports of Services, 1980-81 to 2011-12



Source: Prepared by the Author based on RBI balance of payments data.

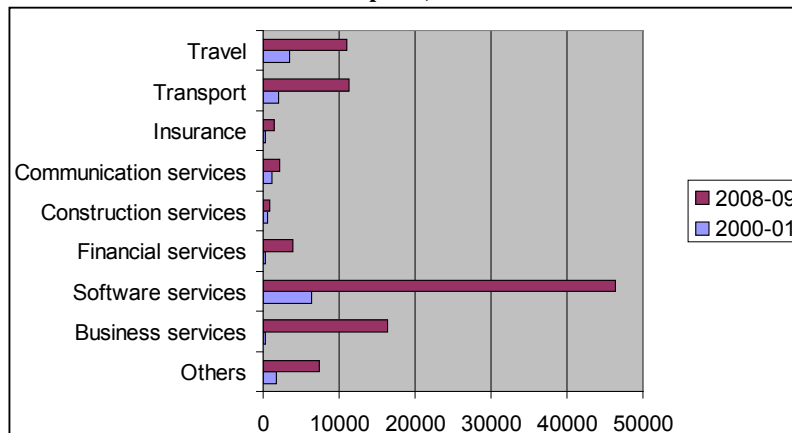
Given the sharp increase in services exports in the 2000s, it would be reasonable to say that the growth of services exports must have contributed to the growth of the organized services sector. Figure 8 depicts the trends in value added in organized services (current prices, expressed in US\$ billion) and the exports of services (in US\$ billion). It may be seen from the graph that the growth in services exports accelerated from 2003-04 and this was accompanied by acceleration in the growth of value added (output) in the organized services sector. Arguably, there is indication that growth in trade in services has contributed to the growth of the organized services sector. This assertion, however, needs to be qualified. The increase in services exports was concentrated in software and IT related services (as may be seen from Figures 9 and 10) and therefore the contribution of services exports to services growth was confined only to a certain category of services.

Figures 9 and 10 show detailed categories-wise value of exports and imports of services. This analysis has been carried out for the years 2000-01 and 2008-09. The figures bring out clearly that both exports and imports of travel and transport services have increased significantly

between 2000-01 and 2008-09. The same applies to business services. By contrast, the increases in trade in communication, insurance and financial services have been relatively modest. The largest increase in exports has taken place in software services (including IT enabled services). The increase in imports of software services has been relatively much smaller.

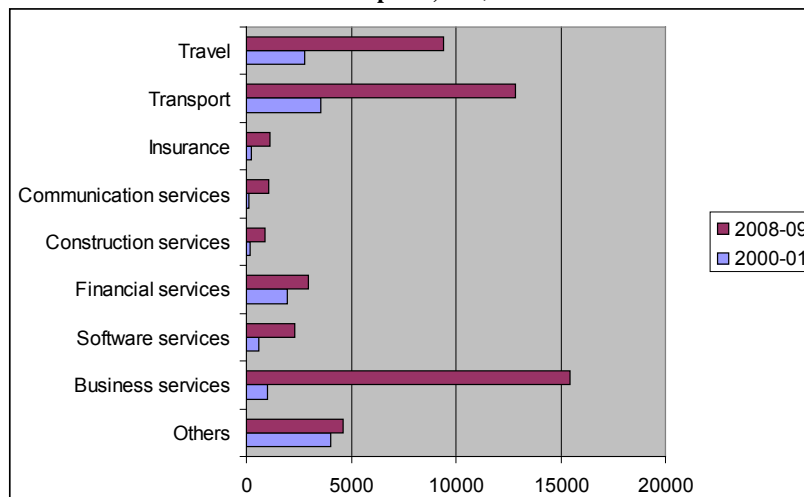
Attention needs to be drawn to the fact that growth acceleration in organized sector services in the 2000s was led by railways, other transport and communication services (see Table 5). Analysis of data on exports of services reveals that these sectors did not get any major boost from the growth from exports. Thus, it is evident that the increase in exports of software services was an important factor influencing growth of organized services. But, the effect was obviously confined to a certain category of services.

Figure 9  
Services Exports, US\$ Million



Source: Prepared by the Author based on data taken from RBI data sources

Figure 10  
Services Imports, US\$ Million



Source: Prepared by the Author based on data taken from RBI data sources

### 5.3 Effect of Foreign Direct Investment

Foreign direct investment inflows into India in the period April 2000 to March 2012 was about US\$ 170 billion.<sup>13</sup> While, the investments were mostly in services and manufacturing, there were investments in other sectors as well. About 4 percent of the investment was in power, 7 percent in real estate and housing (which could be considered a part of the services sector), 7 percent in construction activities (roads, highways, etc), and about 2 percent in petroleum and natural gas. Thus, FDI flows into manufacturing and services was about US\$ 130 to 140 billion. Domestic fixed capital formation in manufacturing and services in the period 2000-01 to 2011-12 was about US\$2,800 billion, compared to which the FDI inflows are very small (less than 5 percent). Thus, at the aggregate level, the direct effect of FDI to growth of organized manufacturing and organized services sectors through augmentation of investible resources was small. However, for specific sectors, FDI inflows might have made a big difference. The available data on sector-wise distribution of FDI inflows reveals that ‘services sector’ (which includes a host of financial and non-financial services) accounted for about 19 percent of total FDI inflows during April 2000 to March 2012.<sup>14</sup> Computer software and hardware accounted for 7 percent and telecommunications accounted for another 7 percent of the FDI inflows. Among the manufacturing industries, automobiles received 4 percent, metallurgical industries received 3.5 percent and chemicals industry other than fertilizers received 6 percent of the FDI inflows. These industries may have gained substantially from FDI inflows, which may have had a favourable effect on the growth of these industries.

The effect of FDI needs to be assessed not only in terms of the additional resources for investment is provided, but also, and more importantly, in terms of the effect it can have on the competitiveness of the firm in which such investment is made and the effect of competitiveness on growth. This aspect has been studied with the help of company level data taken from *Capitaline*. The following equation has been estimated:

$$\Delta S = f(\Delta X, DM_{MT}, DM_{SS}, MK, FE).$$

$\Delta S$  is the change in sales between year t-1 and t.  $\Delta X$ ,  $DM_{MT}$ , and  $DM_{SS}$  are changes in exports, imports of materials, and imports of stores and spares between years t-1 and t.  $MK$  is the ratio of imports of capital good to sales in year t.  $FE$  is the share of foreign promoters and group in firm’s paid up equity.

To empirically estimate the above equation,  $\Delta S$ ,  $\Delta X$ ,  $DM_{MT}$ , and  $DM_{SS}$  have been normalized by dividing them the average value of sales<sup>15</sup> in years t-1 and t, i.e. taking  $Sav = (St-1 + St)/2$ . The  $FE$  variable has been replaced by a dummy variable, which takes value one if  $FE$  exceeds 25% and zero otherwise. The idea is that foreign equity holding will have an impact only beyond a threshold.<sup>16</sup>

The above equation has been estimated separately for each year between 2000 and 2010.<sup>17</sup> The firms have been divided into 93 industries, and the industry fixed effects have been incorporated in the estimated model. Separate estimation of the model has been done for firms engaged in manufacturing and those in services. The results are reported in Tables 6 and 7.

In the model estimates for manufacturing companies, the coefficient of exports is found to be positive and statistically significant for all 11 years, 2000 to 2010. This indicates a positive effect of exports on firms' growth. For imports of materials and imports of stores and spares too, a significant positive effect is indicated by the results even though in the estimates for three years out of 11, the coefficient of the materials import variable is negative. The coefficient of the capital goods import variable is positive in eight cases out of 11, and in most of these cases, the coefficient is statistically significant. Thus, there is indication of a significant positive effect of capital goods imports on firms' growth.

The coefficient of the foreign equity dummy variable is statistically insignificant in 10 out of 11 cases, and the only case where it is statistically significant, the sign of the coefficient is negative which is contrary to expectations. Thus, the evidence presented in Table 6 does not indicate a significant positive effect of foreign direct investment on growth of firms.

The results for services sector companies are somewhat similar. The exports variable has a positive and statistically coefficient in all cases. The materials imports variable has a positive coefficient in all cases, and in eight out of 11 cases, the coefficient is statistically significant. Thus, it may be inferred that exports of services and imports of materials have a significant positive effect on growth of services sector companies. The impact of imports of stores and spares and imports of capital goods appear to be relatively weaker. The coefficient is positive and statistically significant only in small number of cases.

The coefficient of the foreign equity dummy variable is statistically insignificant in 10 out of 11 cases, and the only case where it is statistically significant, the sign of the coefficient is negative. Thus, the results are quite similar to the results for manufacturing companies.

To sum up the above discussion, a positive effect of trade on growth of firms is clearly indicated by the firm level analysis of growth. But, there is no indication of a strong positive effect of foreign direct investment on growth. At the same time, it needs to be recognized that foreign direct investment may have had a significant effect on growth of firms in certain sub-sectors of economy (for example, telecommunications).

## **6. Trends in Employment and Wage Share**

The significant growth in real value added in organized manufacturing and organized services that has taken place in the last three decades has contributed very little to employment generation. This may be seen from Figures 11 and 12. Data on employment in organized manufacturing has been drawn from the *Annual Survey of Industries*. Similar data are not available for services. Therefore, data on employment in organized sector services have been taken from the *Economic Survey* (Government of India), whose basic source is the Directorate General of Employment and Training, Ministry of Labour and Employment.

It will be noticed from Figure 11 that the real value added in organized manufacturing increased by about 900 percent between 1980-81 and 2010-11. The increase in employment in this period was only by about 80 percent. Similarly, it will be noticed from Figure 12 that real value added in organized sector services increased by over 1000 percent between 1980-81 and 2010-11. The increase in employment was by only 40 percent. Evidently, employment

Table 6  
**Model Estimates, Explaining Sales Growth in Manufacturing Companies**

<i>Explanatory variables</i>	<i>Equation estimated for the year</i>										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Change in exports	0.833# (16.75)	1.042# (20.04)	0.513# (13.27)	0.664# (14.83)	0.853# (18.99)	0.304# (8.70)	0.631# (19.32)	0.643# (14.26)	0.245# (9.53)	0.755# (16.19)	1.002# (21.32)
Change in imports of materials	0.632# (9.63)	0.092# (6.26)	0.475# (6.74)	0.979# (10.99)	0.654# (11.73)	-0.208# (-8.78)	0.404# (15.42)	-0.048 (-1.18)	-0.041# (-10.51)	0.595# (9.18)	0.803# (10.05)
Change in imports of stores and spares	1.150# (3.36)	0.898@ (2.43)	2.352# (6.35)	2.051# (7.05)	0.151 (0.46)	0.200# (3.38)	1.077# (3.55)	0.634@ (2.17)	0.513@ (1.99)	0.623# (4.79)	0.864# (3.54)
Foreign equity (dummy)	0.042 (1.30)	0.013 (0.41)	0.030 (0.92)	0.024 (0.75)	0.036 (1.22)	0.009 (0.28)	-0.013 (-0.44)	-0.005 (-0.15)	-0.015 (-0.49)	-0.025 (-0.90)	-0.005 (-0.17)
Imports of capital good/Sales	0.0527# (3.19)	0.615# (2.77)	0.913# (3.72)	-0.133# (-4.85)	-0.035 (-0.36)	0.521# (5.87)	0.381# (3.72)	0.131 (1.42)	0.149# (3.14)	-0.004 (-1.49)	0.006# (2.64)
R-squared	0.167	0.151	0.115	0.159	0.175	0.081	0.142	0.112	0.085	0.185	0.259
No. of observations	3220	3394	3694	3710	3670	3593	3551	3325	2944	2885	2516

*Notes:* t-ratios in parentheses

#, @ and \* statistically significant at 1%, 5% and 10% level.

*Source:* Author's computations based on Capitaline data



Table 7  
**Model Estimates, Explaining Sales Growth in Services Companies**

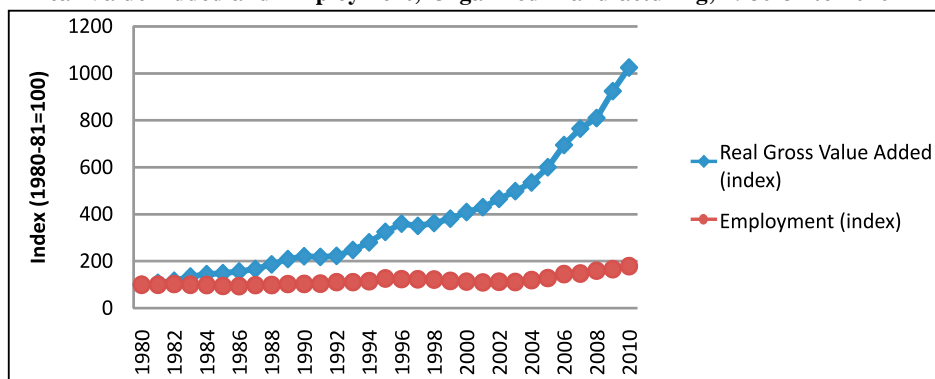
Explanatory variables	Equation estimated for the year										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Change in exports	0.641# (5.43)	0.849# (9.96)	0.868# (7.70)	0.989# (9.25)	0.883# (6.95)	0.822# (5.93)	0.687# (4.67)	0.734# (5.11)	0.975# (8.15)	0.863# (5.57)	1.110# (10.52)
Change in imports of materials	1.360# (4.07)	1.312# (4.20)	1.717# (2.85)	1.470# (3.08)	1.081@ (2.44)	1.297@ (2.26)	0.959 (1.15)	0.747@ (2.58)	0.994@ (2.40)	0.430 (0.86)	0.472 (1.34)
Change in imports of stores and spares	1.046 (0.75)	1.613@ (2.40)	-0.016 (-0.01)	4.610@ (2.33)	1.563 (1.27)	0.643 (0.52)	1.851 (1.38)	0.738* (1.68)	1.807 (1.03)	1.109 (0.44)	0.821 (1.15)
Foreign equity (dummy)	-0.019 (-0.16)	0.164 (1.45)	0.080 (0.71)	-0.065 (-0.55)	-0.054 (-0.45)	0.091 (0.75)	0.091 (0.86)	-0.014 (-0.16)	0.055 (0.74)	0.116 (1.18)	-0.119* (-1.73)
Imports of capital good/Sales	0.028 (0.19)	0.175 (0.91)	-0.056* (-1.73)	1.181# (2.79)	0.225 (0.89)	0.122 (0.64)	0.365* (1.71)	0.016 (0.22)	-0.0001# (-4.12)	-0.00001 (-1.42)	0.134@ (2.20)
R-squared	0.159	0.238	0.096	0.095	0.047	0.043	0.052	0.052	0.120	0.087	0.184
No. of observations	566	715	1094	1363	1407	1316	1208	905	875	843	734

Note: t-ratios in parentheses

#, @ and \* statistically significant at 1%, 5% and 10% level.

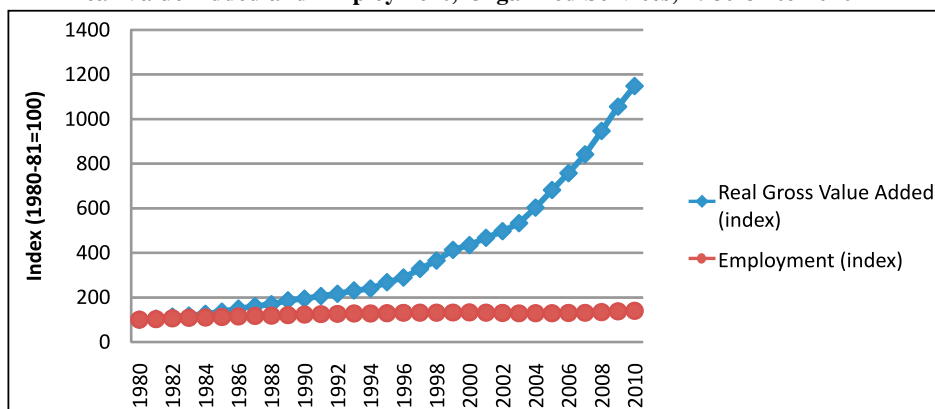
Source: Author's computations based on Capitaline data

Figure 11  
Real Value Added and Employment, Organized Manufacturing, 1980-81 to 2010-11



Source: Authors computations based on *National Accounts Statistics* and *Annual Survey of Industries*

Figure 12  
Real Value Added and Employment, Organized Services, 1980-81 to 2010-11



Note: Deflated value added series of major services groups have been added to derive real value added of organized services at the aggregate level.

Source: Authors computations based on *National Accounts Statistics* and employment data of DGET (Directorate General of Employment and Training, Ministry of Labour and Employment) taken from *Economic Survey*, Government of India (various years).

generation has fallen far short of the growth in output. Why globalization has not contributed to employment generation is an important question to ask. This is examined for manufacturing in Section 6.1 and for services in Section 6.2. This is followed by discussions on the skill composition of workers in organized manufacturing and organized services in Section 6.3 and on the wage share in value added in organized manufacturing and services in Section 6.4. Then, in Section 6.5, there is some discussion on India's comparative advantage.

### 6.1 Employment in Organized Manufacturing

Table 8 shows the trend growth rates in real value added and employment in various two-digit industries in three time periods: 1980-81 to 1990-91, 1990-91 to 2000-01 and 2000-01 to 2007-08.<sup>18</sup> The growth rates in employment are generally low. In a majority

of cases, there has been an increase in the growth of employment in the period 2000-01 to 2007-08 as compared to the period 1990-91 to 2000-01. Interestingly, in 17 cases, the growth rate in value added has accelerated in the period 2000-01 to 2007-08, and in 13 of them there has been acceleration also in employment growth. In five cases, the growth rate of value added has decelerated, and in all these cases, the growth rate of employment has also decelerated. It seems therefore that, in general, the acceleration (deceleration) in output growth in manufacturing in the 2000s has been accompanied by acceleration (deceleration) in the growth rate in employment. The employment effect of acceleration in output growth in the 2000s though favourable was, however, not large. It is only in the years since 2003 that the growth rate of employment in organized manufacturing has reached a high level. Goldar (2011) observes that in the years 2003-04 to 2008-09, the average rate of growth of employment in organized manufacturing was about 7.5 percent per annum. This spurt in employment growth is attributed to labour market reforms undertaken by the Indian states, among other factors. One may argue that the favourable effects of globalization on industrial employment were held back by labour market rigidities, and the labour reforms have now enabled the effects of globalization to be realized. It may be mentioned in passing that a high growth rate in employment in organized manufacturing observed for the period 2003-04 to 2008-09 has continued in subsequent years. The growth rate in employment in organized manufacturing was about 4% in 2009-10, about 8% in 2010-11 and about 6% in 2011-12 (ASI data). Even though the growth in employment in organized manufacturing has been relatively high in the period since 2003, the long term growth rate, considering the period from 1993-94 to 2011-12 is only about 3% per year, whereas the growth rate in real value added in this period was about 8.3% per annum.

The main reason why growing industrial production has not lead to sufficient employment generation is that the industrial structure has shifted away from labour intensive industries when the opposite effect was expected to arise from globalization. Figure 13 shows a plot of growth rates of four-digit industries in the period 2000-01 to 2007-08 against the level of labour intensity (measured by the ratio of employment to value added) in the initial part of the period. Correlation coefficient between the two variables is found to be -0.14. If two points that are somewhat of an outlier are dropped, the correlation increases to -0.25.

The reason why labour intensive industries have grown at a relatively lower rate may lie in the income elasticities of demand for different industrial products. While this point need a closer examination, it appears that the income elasticity of demand for labour intensive products may be relatively low and this has caused the industrial structure to shift away from labour intensive products as the income levels have risen. The opening up of the economy and growing trade should have helped the labour intensive industries. But, this has not happened. Instead, the structure of exports has shifted to products that rank low in labour intensity (Goldar, 2009).

In this connection, it may be mentioned that a detailed study of India's exports undertaken by Veeramani (2007) reveals that the share of technology intensive commodities in total exports has increased from 12.1 percent in 1990-94 to 15.5 percent in 2000-03 and that

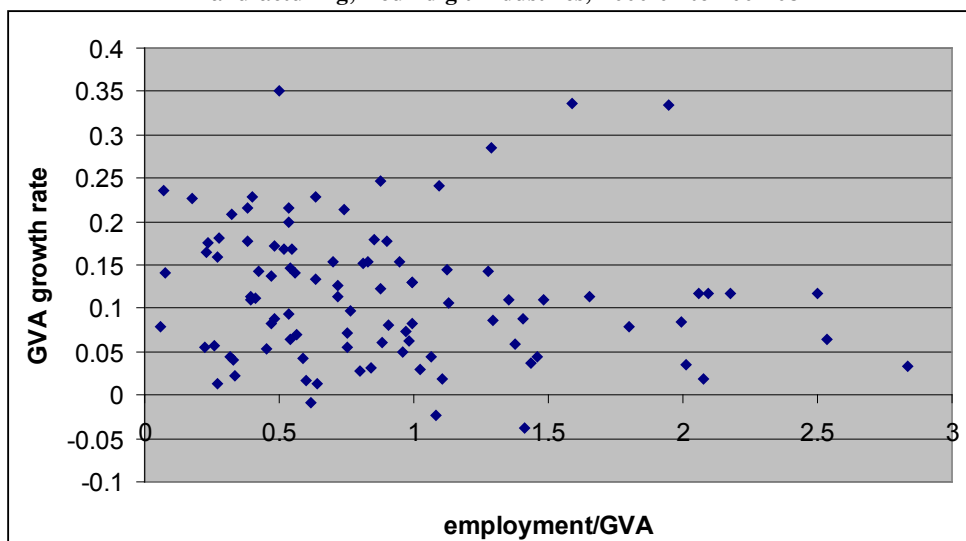
Table 8  
**Growth Rates in Real Value Added and Employment,  
 Organized Manufacturing, by Two Digit Industries**

NIC code	Trend growth rates in real value added, three periods			Trend growth rates in employment, three periods		
	1: 1980-81 to 1990-91	2: 1990-91 to 2000-01	3: 2000-01 to 2007-8	1: 1980-81 to 1990-91	2: 1990-91 to 2000-01	3: 2000-01 to 2007-8
15	0.093 (8.86)	0.053 (5.56)	0.056 (3.36)	-0.010 (-1.66)	0.021 (4.04)	0.005 (0.51)
16	0.072 (5.84)	0.060 (5.38)	0.023 (1.19)	0.030 (3.64)	0.015 (2.04)	-0.024 (-1.88)
17	0.054 (6.21)	0.057 (7.38)	0.065 (4.79)	-0.014 (-2.17)	-0.001 (-0.25)	0.022 (2.24)
18	0.227 (11.73)	0.115 (6.63)	0.031 (1.05)	0.106 (8.96)	0.105 (9.98)	0.072 (3.91)
19	0.119 (10.36)	0.036 (3.47)	0.069 (3.85)	0.058 (11.33)	0.017 (3.77)	0.054 (6.80)
20	0.045 (2.85)	-0.064 (-4.51)	0.110 (4.41)	-0.006 (-0.77)	-0.027 (-3.90)	0.020 (1.63)
21	0.061 (5.53)	0.041 (4.22)	0.079 (4.57)	0.012 (2.00)	0.021 (3.91)	0.018 (1.96)
22	0.019 (1.21)	0.002 (0.14)	0.059 (2.43)	0.001 (0.09)	-0.026 (-3.65)	0.015 (1.21)
23	0.172 (7.21)	0.019 (0.89)	0.204 (5.45)	0.027 (3.24)	0.016 (2.08)	0.041 (3.11)
24	0.107 (11.36)	0.083 (9.87)	0.032 (2.17)	0.026 (5.37)	0.029 (6.69)	0.002 (0.32)
25	0.111 (15.27)	0.107 (16.47)	0.047 (4.08)	0.043 (7.51)	0.045 (8.79)	0.027 (2.95)
26	0.101 (10.16)	0.053 (6.06)	0.111 (7.11)	0.018 (3.83)	-0.003 (-0.61)	0.055 (7.25)
27	0.052 (3.93)	0.066 (5.63)	0.106 (5.12)	0.010 (1.36)	-0.013 (-2.05)	0.030 (2.70)
28	0.053 (5.20)	0.068 (7.42)	0.139 (8.63)	0.023 (3.16)	0.013 (1.99)	0.068 (5.91)
29	0.049 (4.45)	0.045 (4.49)	0.071 (4.10)	0.082 (0.80)	-0.002 (-0.17)	0.005 (0.28)
30	0.143 (7.24)	0.079 (4.46)	0.186 (6.01)	0.006 (0.51)	-0.052 (-4.65)	0.059 (3.03)
31	0.087 (6.07)	0.061 (4.75)	0.111 (4.91)	0.033 (4.44)	-0.001 (-0.22)	0.028 (2.34)
32	0.183 (13.34)	0.139 (11.26)	0.152 (7.10)	0.074 (6.29)	-0.006 (-0.58)	-0.015 (-0.82)
33	0.096 (6.95)	0.096 (7.79)	0.115 (5.30)	0.033 (4.51)	0.021 (3.29)	0.014 (1.21)
34	0.072 (5.25)	0.086 (6.96)	0.148 (6.84)	0.018 (2.97)	0.026 (4.73)	0.062 (6.41)
35	0.060 (4.83)	0.047 (4.24)	0.116 (5.98)	0.027 (1.68)	-0.053 (-3.74)	-0.021 (-0.85)
36	0.107 (4.79)	0.149 (7.44)	0.068 (1.94)	0.016 (2.57)	0.080 (14.35)	0.074 (7.65)

Note: Trend growth rates for sub-periods have been estimated by the kinked exponential model. Figures in parentheses are t-statistics.

Source: Authors computations based on *Annual Survey of Industries*

Figure 13  
**Labour Intensity and GVA Growth in Organized  
 Manufacturing, Four-digit industries, 2000-01 to 2007-08**



for human-capital-intensive commodities has increased from 12.1 to 20.7 percent in this period. By contrast, the share of unskilled labour-intensive commodities has gone down from 31.1 to 27.3 percent in the same period. There is thus basis to argue that the changing commodity composition of India's exports has significantly adversely affected employment in Indian manufacturing.

The pattern noted by Veeramani (2007) is noted again in Veeramani (2012) for a longer period. He shows that the share of unskilled labour intensive products in total exports has declined from 29.8 percent in 1993 to 14.8 percent in 2010. The share of capital intensive products has on the other hand increased from 25.4 percent in 1993 to 53.5 percent in 2010. Within this group, the share of human capital intensive products has increased from 13.4 percent in 1993 to 17.0 percent in 2010. The decline in the share of unskilled labour intensive products in India's exports (as also in manufacturing value added) seems to be attributable in a large measure to the stringent labour laws.<sup>19</sup> Labour regulations have enhanced the true cost of hiring unskilled workers. On the other hand, there are government policies that have lowered the cost of high education and the cost of capital, encouraging thereby capital intensive and human capital intensive industries. An additional factor that has gone against the unskilled labour intensive industries is that the production units are often small in size and thus cannot take advantage of scale economies. Such units are more affected by infrastructure bottleneck, for instance power shortage, and cannot get around the problem by deploying their own resources.

Several studies have drawn attention to the non-tariff barriers faced by Indian exports of labour intensive products in Western markets. This was probably one of the reasons why exports of labour intensive products have not grown fast enough to permit such industries in India to grow rapidly.<sup>20</sup> Also, the fact that India's trade has increasingly shifted from the

western developed countries to developing countries of Asia may have reduced the scope of rapidly expanding the exports of labour intensive products. China for instance has become a major trading partner of India. Given that China is highly competitive in labour intensive products, the possibility of India making large scale exports of labour intensive products to China is obviously limited. This has constrained the growth of labour intensive products from India has thus adversely affected employment generation.

Das et al. (2009) report a continuous decline in labor intensity across all the labor intensive industries. Labor-intensity declined substantially between 1990-91 and 2003-04. They point out that labor-intensity declined not only for capital intensive industries but also for labor intensive industries. The possible explanation for the observed decline in labor intensity (L/K ratio) across all the industries, according to them, lies in access to capital and new technologies becoming easier and cheaper with import liberalization, which induced labor saving. Further, increasing competition both in domestic and international markets have led Indian manufacturers to install new sophisticated technologies (which tend to save labour) to compete in terms of prices as well as in scale. Das and Kalita (2009) investigate the reasons for declining labour intensity in labour intensive industries using primary survey data for covering 252 exporting firms. They conclude that there are several constraints to employment generation in labour intensive exporting firms. These include non-availability of trained skilled workers, infrastructure bottlenecks, low levels of investment, labour rules and regulations, and a noncompetitive export orientation.

Several studies have concluded that labour regulations have constrained employment generation in organized manufacturing. This view is expressed for instance in a study of the World Bank (2010). According to the estimates presented in the study, India failed to create 2.8 million formal manufacturing jobs because of just two clauses of the Industrial Disputes Act. Somewhat similar views on the effect of labour regulations on employment in formal sector of manufacturing are expressed by Dougherty (2008). He notes that while reforms have taken some of the bite out of core labour laws, more comprehensive reforms are needed to address the distortions that have emerged.

The slow growth in employment in organized manufacturing can also be traced to changes in factor prices and improvements in product quality (Goldar, 2009; Kannan and Ravindran, 2009). It has been argued that government policies have changed the relative factor price in favour of capital which has induced firms to adopt more capital intensive technology (a point noted above). Kannan and Ravindran (2009) observe that a set of industries have been able to grow with some job creation, while another set of industries grew largely by shedding employment perhaps to stay on course with the changing nature of product market and domestic competition. These opposing tendencies have resulted in sluggish employment growth in organized manufacturing.

## ***6.2 Employment in Organized Services***

Table 9 shows the trend rates of growth in real value added and employment in four groups of services. The employment data have been taken from the *Economic Survey* (the

basis source is DGET, Ministry of Labour and Employment). These data have known limitations. Nonetheless, no better data on employment in services covering a fairly long period are readily available.

Table 9

**Growth Rates in Real Value Added and Employment, Organized Services, by Industry Groups**

<i>Industry</i>	<i>Trend growth rates in real value added, three periods</i>			<i>Trend growth rates in employment, three periods</i>		
	<i>1: 1980-81 to 1990-91</i>	<i>2: 1990-91 to 2000-01</i>	<i>3: 2000-01 to 2010-11</i>	<i>1: 1980-81 to 1990-91</i>	<i>2: 1990-91 to 2000-01</i>	<i>3: 2000-01 to 2010-11</i>
Trade	0.025 (3.33)	0.189 (29.76)	0.128 (17.32)	0.015 (2.84)	0.010 (2.16)	0.027 (5.17)
Transport, storage, communication	0.039 (14.76)	0.045 (20.03)	0.127 (48.09)	0.011 (10.76)	-0.0002 (-0.23)	-0.019 (-18.99)
Finance, real estate, business services	0.103 (29.86)	0.104 (35.25)	0.122 (35.31)	0.043 (14.12)	0.005 (2.09)	0.062 (20.25)
Other services	0.064 (18.69)	0.063 (21.54)	0.068 (19.98)	0.022 (22.04)	0.006 (7.24)	-0.004 (-4.08)

It has been noted above that there was significant acceleration in value added growth in organized services in the 1990s and then again in the 2000s. From Table 9, it is observed, that the acceleration in value added growth of the 1990s took place mainly in trade and to some extent in Transport, storage and communication. But, in these two groups there was no marked increase in the growth rate of employment. Acceleration in value added growth in the 2000s took place in Transport, storage and communication. But, the growth rate in employment for this group was significant negative in the 2000s, down from a marginal negative growth rate in the 1990s, instead of accelerating in this period. The only industry group within services in which employment growth has accelerated in the 2000s is Finance, real estate and business services. But, this industry group did not experience any major jump in the growth rate of value added. Perhaps, compositional changes have helped in employment generation in this group.

Attention may be drawn here to the possibility that the DGET estimates of employment in organized services sector which have been used in the analysis above may understate the true growth in employment. Sundaram (2008) presents estimates of employment in organized services using NSS data. According to his estimates, employment in organized services increased from 22.9 million in 2000 to 25.6 million in 2005. The DGET estimates (used for Table 9) for these two years are 16.8 and 16.4 million respectively. Thus, while the DGET estimates indicate a fall in employment at the rate of about 0.5 percent per annum, the estimates of Sundaram indicate a growth rate of about 2.3 percent per annum. The growth rate in real value added in organized services in this period, 2000 to 2005 was about 10 percent per annum. Evidently, even if the employment estimates of Sundaram are used instead of those of DGET, employment growth in organized services fell far short of the growth rate in output.

Mitra (2011) analyses the effect of services trade on employment generation in the services sector in India. The effect is found to be negligible. Mitra observes that while trade in services may enhance growth of the services sector it is less likely to be inclusive since it would not contribute to employment generation. These findings are obviously in line with the employment growth trends noted above.

Why has employment growth in organized services been very low or negligible in spite of a rapid growth in output? The answer may lie in the changing composition of the services sector. Perhaps the sector that have grown relatively much faster do not generate much employment per unit of output (this follows the argument of Banga, 2005). Alternatively, the growth may have emerged from a fast growth in productivity realized through more effective use of previously underutilized labour (this follows the argument of Dehejia and Panagariya, 2010).

### 6.3 Skill Composition of Workers

There is rather limited data on skill composition of workers. The *Annual Survey of Industries*, which the most important source of data on manufacturing industries does not provide any data on skill levels of workers. Although some studies have taken the division of employees into workers and persons other than workers as a proxy for the skill composition of employees, this has serious limitations. The employment data on organized services obtained from the *Economic Survey* also do not provide information on skill level of workers. The NSS employment-unemployment surveys contain information on the levels of education of workers. But, there are difficulties in separating organized sector workers from unorganized sector workers. Since unorganized sector workers far exceed the unorganized sector workers in manufacturing, and the situation is not very different in services (where unorganized sector workers form a sizeable proportion), the data at the aggregate level may not properly show the changes in skill composition that is taking place in the organized sector components of manufacturing and services. For the NSS employment-unemployment surveys for 1999-00, 2004-05 and 2009-10, it is possible to separate the organized sector workers from unorganized sector workers. Therefore, for 1999-00 and 2009-10, the composition of workers of organized manufacturing and services sector according to the educational level has been computed and compared. These are shown in Tables 10, 11 and 12.<sup>21</sup>

Table 10  
Distribution of Workers by Education Class,  
Organized Manufacturing and Organized Services, 1999-00 and 2009-10

Education class	Organized manufacturing		Organized services	
	1999-00	2009-10	1999-00	2009-10
Below primary	26.6	20.1	11.9	6.8
Primary	12.0	13.6	6.3	4.7
Middle	19.1	18.5	13.0	10.2
Secondary & Higher Secondary	27.8	25.8	35.5	27.2
Graduate, etc	14.5	22.1	33.3	51.1
Total	100	100	100	100

Source: Computed from Unit-level data of NSS employment-unemployment surveys



In Tables 10, organized sector workers have been divided into five categories according to their level of education. The lowest educational category is below primary, and the highest level is graduates, diploma holders etc. The distribution of workers by education class is shown for 1999-00 and 2009-00 separately for manufacturing and services.

It may be noted from Table 10 that the proportion of workers with education below primary formed about 27 percent of workers in organized manufacturing in 1999-00. For organized services, the corresponding figure was about 12 percent. Thus, the scope of employment of less educated workers was relatively greater in manufacturing than that in services.<sup>22</sup> Between 1999-00 and 2009-10, the share of workers with education below primary out of all workers in organized manufacturing came down to 20 percent. And, the share of workers with education below primary in organized services decreased to about 7 percent. Evidently, the scope for employment of low educated workers is in organized services is rather limited. The situation is somewhat better in the organized manufacturing.

Turning now to workers who are graduates or diploma holders, their share out of organized manufacturing employment is lower than that in organized services employment. The share of such workers in employment has increased over time in both organized manufacturing and organized services. The increase in the employment of such workers in services has been bigger than that in manufacturing. Thus, the gap has widened over time. In 2009-10, in organized services, the workers who are graduates or diploma holders formed about half of the total workers. The corresponding figure for organized manufacturing was about 20 percent.

Tables 11 and 12 presented a disaggregated analysis of skill composition of workers, undertaken at three-digit industry level. In these tables, workers have been divided into four categories according to their level of education. The analysis has been confined to those three-digit industries that employed at least 35,000 workers in 1999-00. The lowest educational category is below primary. The highest category is workers with secondary education and above.

In manufacturing, there has been a significant increase in the proportion of workers with secondary education or above. This proportion has increased from 42 percent in 1999-00 to 48 percent in 2009-10. In services, a similar increase has taken place. The relevant proportion has gone up from 69 percent in 1999-00 to 78 percent in 2009-10. It is evident that the employment of workers with secondary education or above is higher in services than in manufacturing, and the gap has slightly widened between 1999-00 and 2009-10.

It is interesting to note that in most manufacturing industries considered for the analysis in Table 11, the proportion of workers in the bottom category has gone down between 1999-00 and 2009-10, and the proportion of workers with education level of secondary and above has gone up. The same applies to the services industries. In most cases, the proportion of workers with below primary education has gone down that that with secondary education and above has increased. In certain cases, the increase in the proportion of workers with secondary education and above is huge.

Table 11  
**Distribution (%) of Workers by Education,  
 Select Three-digit Manufacturing Industries, Organized**

<i>Industry Code</i>	<i>1999-00</i>				<i>2009-10 Q</i>			
	<i>Below primary</i>	<i>Primary</i>	<i>Middle</i>	<i>Secondary &amp; Higher</i>	<i>Below primary</i>	<i>Primary</i>	<i>Middle</i>	<i>Secondary &amp; Higher</i>
171	28.4	16.4	24.2	31.0	20.3	19.5	24.7	35.5
269	57.4	11.1	12.7	18.8	55.0	14.8	13.1	17.1
154	28.2	14.9	19.8	37.1	20.3	16.1	25.3	38.3
242	19.2	10.0	14.0	56.7	11.7	11.4	10.7	66.3
160	69.2	11.5	11.5	7.8	56.3	19.5	13.4	10.8
271	14.2	10.3	16.9	58.6	13.5	10.4	13.5	62.6
181	20.1	10.4	33.1	36.4	19.5	16.6	24.6	39.3
369	27.6	12.5	29.4	30.4	10.0	20.9	26.2	42.8
292	5.7	24.1	17.2	53.0	0.2	11.3	14.1	74.4
289	25.5	10.5	30.3	33.7	12.7	12.4	15.1	59.8
172	26.1	23.3	27.0	23.7	30.8	28.5	18.2	22.5
252	10.9	7.0	20.7	61.4	7.0	6.5	22.2	64.3
241	20.0	10.4	9.4	60.1	6.6	11.1	7.9	74.5
281	16.6	13.6	19.0	50.7	2.4	14.3	35.4	47.9
313	14.2	1.4	8.4	76.1	3.3	1.9	18.6	76.2
153	54.7	15.5	12.4	17.4	39.6	8.5	10.3	41.6
291	6.6	5.0	14.0	74.5	4.4	2.9	12.7	80.0
210	17.7	14.2	19.2	49.0	18.5	6.4	10.7	64.4
251	15.8	7.4	17.0	59.9	6.9	5.4	33.7	54.1
359	21.9	5.1	15.6	57.3	6.8	10.1	11.1	72.0
151	25.5	18.4	19.5	36.5	12.6	20.5	21.4	45.5
341	6.6	9.1	11.7	72.7	6.7	0.5	2.2	90.6
192	27.3	6.9	24.6	41.3	25.0	5.0	24.5	45.5
319	7.3	7.7	31.5	53.6	0.0	0.0	14.3	85.7
232	18.3	5.1	9.6	67.0	6.2	11.2	13.4	69.2
155	24.7	18.3	33.7	23.3	5.5	14.8	48.3	31.4
221	4.7	2.8	7.9	84.6	1.1	4.1	9.1	85.7
272	24.6	6.7	7.8	60.9	27.1	10.7	3.3	59.0
191	18.4	9.6	33.7	38.3	10.5	3.9	40.7	44.9
222	17.4	9.1	29.4	44.0	4.5	8.9	30.9	55.7
152	18.7	16.3	16.1	48.9	3.8	14.9	18.5	62.8
311	13.1	11.5	10.7	64.7	0.7	4.1	7.3	87.9
261	25.7	6.5	32.3	35.6	47.5	18.3	16.2	17.9
315	34.0	7.8	22.1	36.1	0.0	8.8	29.1	62.1
273	12.8	7.1	26.4	53.6	12.7	10.5	3.6	73.2

173	16.1	21.8	18.2	44.0	6.1	20.0	21.4	52.5
202	46.3	9.0	20.4	24.4	39.5	14.9	30.1	15.6
312	17.6	4.4	16.4	61.6	16.6	0.0	0.7	82.7
293	8.7	14.4	15.3	61.7	3.9	13.2	21.5	61.5
321	10.1	3.5	9.6	76.8	3.0	16.5	21.5	59.0
361	18.1	11.7	36.5	33.7	8.6	16.0	27.8	47.5
201	42.7	21.1	12.2	24.0	26.4	12.0	3.5	58.1
Manufacturing industries	26.6	12.0	19.1	42.2	20.1	13.6	18.5	47.8

Source: Computed from Unit-level data of NSS employment-unemployment surveys. For description of codes, see NIC-1998 in the website of the Ministry of Statistics and Programme Implementation.

Table 12

**Distribution (%) of Workers by Education, Select three-digit Services Industries, Organized**

Industry Code	1999-00				2009-10			
	Below primary	Primary	Middle	Secondary & Higher	Below primary	Primary	Middle	Secondary & Higher
751	11.5	7.7	14.4	66.4	7.8	6.5	12.0	73.8
801	5.0	1.6	6.7	86.7	5.6	2.2	4.7	87.5
802	6.7	1.9	4.7	86.7	2.9	2.5	5.3	89.3
602	15.0	12.0	21.6	51.4	18.9	8.6	18.8	53.7
651	2.0	1.9	11.9	84.2	1.4	2.1	5.2	91.4
752	5.1	3.2	15.4	76.3	1.8	2.8	8.8	86.6
851	9.9	5.7	9.2	75.3	6.9	4.0	8.8	80.3
601	20.2	10.1	17.8	51.9	10.2	6.0	12.8	71.0
522	13.7	6.1	24.3	55.9	14.6	5.6	38.3	41.6
803	2.1	3.8	7.1	87.0	3.1	3.0	5.1	88.8
641	1.3	2.1	18.7	77.9	2.8	1.2	17.1	78.9
642	3.1	3.5	17.0	76.4	0.7	2.5	9.8	87.0
930	73.8	13.7	6.3	6.2	42.8	6.8	10.2	40.3
919	24.7	9.0	22.1	44.2	19.4	17.4	16.0	47.2
630	26.0	7.2	22.6	44.1	15.4	19.7	10.7	54.1
950	57.1	15.1	21.0	6.8	19.6	15.8	25.8	38.7
900	70.8	15.3	8.0	5.9	36.0	24.6	18.0	21.4
853	11.7	34.4	17.6	36.4	12.3	14.1	17.2	56.5
523	4.4	4.9	21.0	69.8	4.2	4.2	15.6	76.1
660	0.0	2.5	4.4	93.1	0.4	0.0	2.9	96.7
551	19.9	8.4	9.2	62.5	2.1	2.2	27.3	68.4
659	0.2	1.7	9.6	88.6	0.5	2.2	5.9	91.3
526	65.6	10.1	7.8	16.5	18.9	2.7	36.8	41.7
552	36.7	12.4	25.7	25.3	15.8	11.8	29.5	42.8
741	0.0	4.2	5.3	90.5	0.3	0.0	0.7	99.0
749	12.2	5.9	16.9	65.0	10.7	5.5	13.3	70.5
921	16.3	16.9	25.7	41.1	6.5	5.3	5.3	82.8
611	2.9	17.2	11.5	68.4	0.3	26.6	4.3	68.9
852	13.2	4.1	4.2	78.4	0.0	3.9	8.1	88.0

512	27.9	10.6	18.2	43.3	21.1	5.5	26.7	46.8
722	2.9	0.0	0.0	97.1	0.6	0.9	0.6	98.0
809	2.0	0.0	7.5	90.5	1.9	0.9	3.2	94.0
513	4.0	7.6	8.1	80.3	0.6	3.4	17.2	78.8
502	44.7	14.4	10.8	30.1	2.9	14.1	11.0	72.0
753	8.9	10.1	17.1	63.9	23.4	5.3	6.9	64.4
621	3.5	2.8	4.1	89.6	0.0	0.0	3.6	96.4
731	9.6	18.2	13.3	58.9	0.0	2.9	0.0	97.1
521	2.4	14.9	36.9	45.8	1.7	0.1	32.9	65.3
Services	11.9	6.3	13.0	68.8	6.8	4.7	10.2	78.3

Source: Computed from Unit-level data of NSS employment-unemployment surveys. For description of codes, see NIC-1998 in the website of the Ministry of Statistics and Programme Implementation.

#### 6.4 Trends in Wage Share in Value Added

One labour related issue that has drawn attention of researchers is the marked downward trend in the share of wages in value added in India's organized manufacturing.<sup>23</sup> This has, however, occurred not only in organized manufacturing but also in most of the organized sector services (see Table 13). For some of the services industries, the fall in the wage share in gross value added has been much bigger than that in organized manufacturing.

Table 13

#### Wage Share in Gross Value Added, Organized Components of Manufacturing and Services

Industry	Wage share, 1993-94 to 1995-96 average (percent)	Wage share, 2007-08 to 2009-10 average (percent)	Difference
Manufacturing	33.3	22.2	-11.1
Trade	28.8	18.7	-10.1
Hotels and Restaurants	45.7	14.2	-31.4
Rail Transport	58.5	69.7	11.3
Other Transport	64.7	43.6	-21.1
Storage	69.8	47.0	-22.8
Post and Communication	31.1	53.5	22.4
Financial intermediation, Insurance, Business services, etc.	36.4	24.5	-12.0
Other services (including public administration and defence)	79.0	83.4	4.4

Source and Note: Based on *National Accounts Statistics*, Central Statistical Office, Government of India. Taken from Goldar (2013).

The fall in wage share in organized manufacturing is observed not only at the aggregate level but also for most two-digit industries. This is brought out by the analysis undertaken in Goldar (2013). What is interesting to observe is that the wage share in value added has increased in textiles and leather industries while it has generally decreased in other industries.

Several studies have noted the downward trend in the wage share in value added in India's organized manufacturing and have suggested a possible explanation for this phenomenon.

Some of the factors that seem to have contributed to the downward trend in wage share in organized manufacturing are reduced bargaining power of trade unions (Goldar and Aggarwal, 2005), increasing capital intensity of production, increasing use of contract workers in place of directly employed regular workers,<sup>24</sup> increase in mark-up coupled with increase in the ratio of materials to wages (Shastry and Ramana Murty, 2003) and labour saving technical change (Virmani and Hashim, 2009).

The downward trend in the wage share in value added in organized manufacturing is in a large measure attributable to the forces of competition and globalization and the associated technological change. It is difficult to say if the same factors explain, fully or partly, the observed downward trend in wage share in value added in services. However, a process of labour saving technological change is probably one of the factors responsible for the decline in wage share in value added in services. This issue needs further investigation.

### ***6.5 India's Comparative Advantage***

At the time the process of trade and investment policy liberalisation began in India, there was a strong belief that India's comparative advantage lies in labour intensive products. It was hoped that the changed economic environment will shift the industrial structure towards labour intensive industries and thus help in generating a lot of employment, especially for unskilled labour. But, this has not happened. The share of labour intensive export-oriented industries in manufacturing value added has not increased over time; rather it has gone down. Further, the share of labour intensive products in India's export basket has not gone up; rather it has gone down. Data presented in Goldar (2009) show that the share of leather and products in total exports of manufactures has declined from 6 percent in 1996-97 to 2.6 percent in 2007-08. Similarly, between these two years, there has been a fall in the shares of Readymade garments (from 14.2 percent to 7.4 percent), and Cotton yarn, fabrics, made-ups, etc (from 11.8 percent to 3.5 percent). The combined share of coffee and tea was 1.6 percent in 1996-97, which fell to 0.7 percent in 2007-08. These observations on the relative output and output share of labour intensive export oriented industries raise the question, whether India really has a comparative advantage in labour intensive products.

It would be useful to look at some empirical evidence on comparative advantage. Several studies have computed the reveal comparative advantage (RCA) indices, which provide some indication of India's comparative advantage. RCA indices at the level of product groups or chapters presented by Burange and Chaddha (2008) for the period 1996 to 2005 show that tea and coffee, textiles, leather and products, and chemicals and chemical products are among the product categories that rank relatively high in terms of RCA. Their analysis at item-level reveals that out of the 591 items that displayed comparative advantage in the 10 year period studied by them, most belong to apparel, cotton, man-made staple fibres, organic and inorganic chemicals and iron and steel. Somewhat similar conclusions can be drawn from the estimates of RCA presented by Batra and Khan (2005). Their estimates at item level show that many of the items in which India has a comparative advantage belong to chemicals, iron and steel, textiles, manmade fibres, and electrical machinery and electronic equipment.

Kamata (2010) tries to link the proportion of exporting firms in an industry and the level of comparative advantage. The model used extends the work of Melitz (2003) and Bernard, Redding and Schott (2007). The data for Indian manufacturing (for 1997-98) presented in the paper shows that 54 percent of firms in apparel and other textile products were exporting. The relevant proportion for some other industries are: 18 percent for textile mill products, 46 percent for leather and leather products, 22 percent for chemical and allied products, and 24 percent for instruments and related products. For the manufacturing sector as a whole the proportion in question was 14 percent. Kamata finds a significant inverse relationship between skill intensity of the industry and the proportion of firms of the industry engaged in exports. This could be interpreted as showing that India does not have comparative advantage in skill intensive manufacturing industries.

The upshot of the above discussion is that India's comparative advantage is not confined to textiles and leather products, and other such labour intensive products. India has a comparative advantage also in a large number of items belonging to chemicals, metals and man-made fibres, which cannot be regarded as labour intensive.<sup>25</sup> Yet, it cannot be denied that India does have a comparative advantage in many labour intensive products, and why such products have not been able to capture a larger share of the export basket and acquire a larger share of domestic industrial output, remains unclear. Probably, there were external constraints in the form of NTBs in developed country markets, along with internal constraints in the form of infrastructure inadequacies and labour regulations. It may be added here that in spite of labour abundance in the country, the labour intensive industries in India may not be sufficiently cost competitive. The fact that wages are relatively low in India may not by itself make the labour intensive industries cost competitive, if the level of productivity is low.

In this context, it would be useful to examine which industries in the organized sector employ the uneducated or very low educated workers. Analysis of the NSS data reveals that, in 2009-10, about 75 percent of the uneducated or very low educated workers in organized sector services were working in the following ten industries (NIC codes): 751 (public administration and defence), 602 (other land transport), 801 (primary education), 851 (hospitals and other health facilities), 930 (other service activities such as hair dressing and beauty treatment and funeral and related services), 601 (railways), 802 (Secondary/Senior Secondary education), 630 (Supporting and auxiliary transport activities; activities of travel agencies), 919 (religious, political and other such membership organizations) and 552 (Restaurants, bars and canteens). These industries accounted for about 72 percent of the workers with only primary education. It should be noted that the dynamic components of the services sector such as software, IT enabled services, and business services are not in the list of services that provide employment to the uneducated or low educated workers. While employment in business services has more than doubled between 1999-00 and 2009-10, and that in software consultancy has gone up by nearly 800 percent in the same period, the employment in the ten services industries mentioned above, which provide employment to uneducated and low educated workers, has increased only by 17 percent.

Turning to manufacturing, the following organized sector industries accounted for about 75 percent of uneducated or low educated workers: 269 (non-metallic mineral products other than glass and glass products, which includes brick, cement, tiles and ceramics), 171 (spinning, weaving and finishing of textiles), 160 (manufacture of tobacco products), 172 (manufacture of other textiles), 181 (manufacture of wearing apparel), 154 (Manufacture of other food products, such as bakery products, sugar, cocoa, chocolate and sugar confectionery, and macaroni, noodles, couscous and similar farinaceous products), 153 (manufacture of grain mill products, starches and starch products, and prepared animal feed), 242 (manufacture of other chemical products, including paints, varnishes, matches, fireworks, and salt), and 261 (Manufacture of glass and glass products). These industries accounted for about 62 percent of the workers with only primary education. How to increase the production of these industries and thus create more employment opportunities for unskilled workers is a moot question. But, it should be noted that while some of these industries figure in the list of industries in which India has a comparative advantage, many others probably do not belong to the list. Thus, measures for augmenting exports may do little for the growth of such industries and therefore employment opportunity for the unskilled or low skilled workers in such industries may not increase.

## **7. Conclusion**

The paper dealt with the effect of globalization on growth of organized manufacturing and organized services sector in India and how this in turn has impacted employment in these two sectors. The analysis of trends in growth rate in real value added at the aggregate level brought out that there was deceleration in growth of organized manufacturing in the 1990s and acceleration thereafter in the 2000s. The growth rate achieved by organized manufacturing during 2000s, especially the growth rate achieved in the period since 2003-04, exceeded not only the growth rate of the 1990s, but also that of the 1980s. Disaggregate level analysis indicated that in a fairly large part of the organized manufacturing sector there has been acceleration in growth in the 2000s.

In the organized services sector, by contrast, the growth rate in real value added in the 1990s exceeded that in the 1980s, and the growth rate in the 2000s was still higher. Disaggregated analysis revealed variations in the experience of different categories of services. Banking and insurance did not achieve any marked acceleration in growth in the 1990s; rather the growth rate in real value added came down. Services sector growth acceleration in the 1990s was led by trade, hotels and restaurants, communication, and business services. The acceleration in the growth rate of services in the 2000s was led by railways and other transport, and communication. None of the other services experienced significant growth acceleration in the 2000s though there was significant growth acceleration at the economy level. One important difference between organized manufacturing and organized services is that productivity increase was a major contributing factor to services sector growth.

In the post-reform period, especially in the 2000s, there have been large increases in trade of manufactures and trade in services. Also, the annual inflow of foreign direct investment

in the organized manufacturing and organized services sectors has increased many folds. The analysis indicated that trade has made a significant contribution to growth of organized manufacturing as well as organized services. In the case of services, the contribution was probably concentrated in certain categories of services (e.g. software services, and IT enabled services).

Foreign direct investment flows into manufacturing and services in the period April 2000 to March 2012 was about US\$ 130 to 140 billion. Domestic fixed capital formation in manufacturing and services was about US\$ 2,800 billion, compared to which the FDI inflows were small (less than 5 percent). Thus, at the aggregate level, the direct effect of FDI to growth of organized manufacturing and organized services sectors through augmentation of investible resources was small. However, for specific sectors (e.g. telecommunications), FDI inflows might have made a major contribution to growth. Analysis of company level data revealed a significant impact of exports and imports of intermediate goods and capital goods on growth of firms. But, no significant effect of foreign equity participation on the growth of firms was observed.

The rapid growth attained by organized manufacturing and organized services in the two decades of economic reforms did not result in any significant increase in employment in these two sectors. Rather, there was virtual stagnation in employment (except for the very recent surge in employment in organized manufacturing). Since services dominated the growth of the organized sector and services are more skill intensive, creation of formal sector jobs for unskilled workers suffered.

Organized manufacturing failed to generate employment because globalization did not raise the share of the labour intensive export oriented industries in industrial output. The share of these industries in manufactured exports also did not increase. The labour intensive industries over time substantially reduced employment per unit of output. There are several reasons for the unimpressive performance of the labour intensive manufacturing industries: NTBs in the developed country markets adversely affecting exports, infrastructure inadequacies and labour regulations. The change in the relative price of labour and capital inputs in favour of the latter encouraged substitution of labour by capital. This tendency was reinforced by the competitive pressures, particularly in term of product quality, which forced the manufacturing firms to bring into use advance technology that were often labour saving in character.

The slow growth in employment in organized services can be attributed partly to the composition effect. Rapid growth took place in those categories of services that do not generate much employment. Another factor that had an impact is that the growth in services output was productivity driven. The services sector made substantial increases in productivity through more effective use of workers previously underutilized. This obviously had an adverse effect on employment.



### Notes

1. These growth rate estimates are based on a kinked exponential model fitted to real GDP data for the period 1980-81 to 2010-11.
2. The difference between the growth rate in the 1990s and that in the 1980s is statistically significant at ten percent level. By comparison, the difference between the growth rate in the 2000s and that in the 1990s is statistically significant at one percent level. The hike in the trend growth rate in real GDP between 1980s and 1990s is relatively small when compared to the hike in the trend growth rate in real GDP between the 1990s and 2000s.
3. Extending the period to 2012-13 does not change the trend growth rate; it remains at 7.4 percent per annum (i.e. the trend growth rate in GDP in the period 2000-01 to 2012-13). If the kinked exponential model is not used, and the trend growth rate in GDP is computed for the period 2000-01 to 2012-13 by fitting a simple exponential trend equation to data for this period, the growth rate is found to be 7.6 percent per annum.
4. Was the acceleration in economic growth in the 2000s accompanied by an increase in the growth rate of employment? This is unclear. According to the estimates made by Papola and Sahu (2011), the growth rate in aggregate employment was about 1.7 percent per annum between 1987-88 and 1999-00, which increased to 2.2 percent per annum between 1999-00 and 2007-08. But, the estimates of employment growth presented in their subsequent paper (Papola and Sahu, 2012) indicate that the rate of employment growth in the periods 1999-00 to 2004-05 was 2.81 percent per annum which fell sharply to 0.22 percent during 2004-05 to 2009-10. Thus, for the period 1999-00 to 2009-10, the average growth rate turns out to be about 1.5 percent per annum, which is lower than the annual growth rate in employment between 1987-88 and 1999-00. Estimates of aggregate employment made for recent years using National Sample Survey data on employment reveal that between 2009-10 and 2011-12, there was a 3% increase in employment. Taking the period 1999-00 to 2011-12, the average growth rate in employment is found to be about 1.6 percent per annum which is slightly lower than the growth rate in employment during 1987-88 to 1999-00. The implication is that the acceleration of economic growth in the 2000s did not result in any acceleration in employment growth.
5. Organized sector real gross value added in manufacturing and services has been computed in two steps. First, using the tables on factor incomes provided in the *National Accounts Statistics*, the share of the organized sector in value added has been computed for manufacturing and the various services industries (list given in Table 5). Once the shares are computed, these have then been applied to the time series in real gross value added (Gross Domestic Product at 2004-05 prices) for various industries or economic activities (organized plus unorganized combined) of the economy given in the *National Accounts Statistics*.
6. Note, however, that within the organized sector GDP, the share of manufacturing has doubled between 1980-81 and 2010-11.
7. ASI data are currently available only up to 2011-12. The industrial classification used for the ASI data for 2008-09 onwards is, however, different from that used for 2007-08. The analysis is therefore confined to the period up to 2007-08.
8. For this part of the analysis, a dataset on employment and real gross value added for four-digit industries for the period 1990-91 to 2003-04 prepared in a study undertaken at the ICRIER (Labour Intensity and Employment Potential in Indian Manufacturing, Report submitted to the National Manufacturing Competitiveness Council, Government of India) has been used. The author is grateful to the research team at the ICRIER that undertook to above-mentioned study for making the data available. These data series have been extended to 2007-08 using more recent ASI data.
9. The NAS provides the real GDP series for several categories of services. The share of the organized sector out of the value added in an industry in different years is available in the factor income tables of NAS. As noted earlier, these two pieces of information have been used to form real GDP in organized services.
10. The growth rate in India's aggregate exports was negative in 2009-010, and negative again in 2012-13.

11. This aspect has been examined further in Virmani and Hashim (2011), who have extended the period of analysis to 2007-08. The basic conclusions of this study the same as those in Hashim et al. (2009). The authors find evidence in support of their position that technological obsolescence, gradual adoption of new technology and learning by doing resulted in negative effects on measured productivity. This is put forward as an explanation for slowdown in productivity growth in the 1990s, which would in turn explain the slowdown in output growth in the 1990s as observed in Figure 2, Tables 1 and 3 above.
12. At the time this analysis was undertaken, the latest available input-output table for India was for 2006-07. This is the reason why the period for which growth rate in exports considered for the analysis is up to 2006-07. An input-output table for 2007-08 has become available now. However, the import flow table is not available yet. Therefore, the analysis could not be extended to 2007-08.
13. Fact Sheet on Foreign Direct Investment, March 2012, Ministry of Commerce and Industry, Government of India.
14. Certain services not included in this group are trading, hotel and tourism, information and broadcasting, print media, port services, consultancy, hospitals and diagnostic centres, education, sea transport, and air transport, together accounting for about 10 percent of total FDI inflows.
15. Observations for which the value of  $\Delta S/S_{av}$  is very high (over 200%) have been dropped before estimating the regression model.
16. The results do not differ much is the foreign equity proportion is used directly as an explanatory variable, or alternate thresholds are used, for instance, 10 percent or 50 percent.
17. The equation estimate for 2000 uses those observations drawn from company balance sheets in which the accounting year closes in 2000 (in March or December or in some other month). The observations for other years are drawn similarly. The data on equity holding is available for the latest year. Therefore, on this variable, the same data (not varying over time) have been used for the equations estimated for different years.
18. Due to a change in industrial classification in ASI data from 2008-09, the analysis is confined to the period up to 2007-08.
19. A number of scholars have noted the adverse effects that labour regulations have on labour intensive industries in India. There have been several econometric studies on Indian industries in which evidence of adverse effect has been presented.
20. The problems posed by non-tariff barriers have been discussed at length in a study undertaken by the ICRIER (Convergence towards Regional Integration between the EU and India: Trade Implications for the UK and India, Aberystwyth University and ICRIER, 2008). It should be recognized that there are other constraints to the growth of labour intensive industries. These include availability of infrastructure and credit, which have been highlighted in a Report prepared by the ICRIER for the National Manufacturing Competitiveness Council, Government of India (*Labour Intensity and Employment Potential in Indian Manufacturing*).
21. I thank Prof. Suresh Aggarwal for providing the employment estimates at three-digit level disaggregated according to the level of education.
22. A similar observation is made by Ramaswamy and Agrawal (2012) who have used NSS data to study employment in manufacturing and services in urban India in the years 1999-00 and 2009-10.
23. The term wage share is used here in a broad sense to include income of salaried employees. Thus, to be more specific, it refers to the share of labour income out of gross value added. One may define wage share narrowly to refer to the share of wages of workers in gross value added. This will leave out the income of salaried employees as well as the monetary value of benefits given to workers. Even when a narrow definition is adopted, there has been a marked fall in the share of wages in gross value added in India's organized manufacturing. For aggregate ASI, the ratio in question fell from 26% in 1981-82 to 21% in 1990-91 and fell further to about 9% in 2007-08. It has been at about 10% in 2011-12.

24. For a discussion on the impact of use of contract workers on the income share workers in total labour income, see Ramaswamy (2008).
25. Between 1990 and 2008, India's share in world exports has fallen in Tea and mate (22.1% to 9%) and Manufactures of leather or of composition leather (13.4% to 4.4%), whereas India's share in world exports increased in Organic chemicals (0.3% to 2.1%), Dying, tanning and coloring materials (1.2% to 2.2%), Woven fabrics of man-made fibre (0.7% to 4.4%) and Iron and steel (0.3% to 1.9%) (*Economic Survey*, Government of India, 2010-11 pages A102-A103). This supports the argument that India has a comparative advantage in several items outside the list of traditional labour intensive export items.

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