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IMPACT OF TRADE ON SERVICE SECTOR EMPLOYMENT IN INDIA

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Abstract

This study makes an attempt to assess the impact of trade liberalization on services sector employment. Based on the time series macro data, the elasticity of organised services sector employment with respect to value added and exports and imports have been estimated. After controlling for growth it is difficult to identify a positive and significant impact of international trade on employment in the organized service sector. We have also tried to work out the direct and indirect effects of exports and imports on employment after deciphering their effects included in overall growth. However, the positive effects are mostly negligible. For the informal or unorganized services sector employment the impact does not seem to be greatly different from what is observed in the case of the organized services sector employment. Also as per the company level data international trade does not seem to be an important determinant of employment in the services sector.

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1 Perspective

In the present context of globalisation countries across the globe are pursuing vigourously a pro-growth approach. However, growth alone may not be sufficient to bring in any major improvement in economic and social wellbeing, particularly of those who are located at the lower echelons of the socio-economic ladder. The basic pre-requisite for this is rapid growth in productive employment opportunities by means of which the benefits of growth may be shared more equitably with the deprived lot. The cross-regional variations in growth and poverty are enormous (Minujin, Vandermoortele and Delamonica, 2002). To be specific, whether economic growth is able to generate employment opportunities on a large scale, particularly for the unskilled, semi-skilled and the less educated labour force is an important question that has been bothering the development economists since long. Second, what impact have the economic reforms in various sectors made on the employment front is another important dimension of the issue that needs thorough investigation.

From the historical experience of the present day developed nations it is evident that an important determinant of economic growth is industrialization. The role of industry is crucial in generating high productivity employment and in enhancing the standard of living of the population. In the process of development a structural shift both in the value added and in the work force composition takes place away from the primary sector first towards the secondary and later towards the tertiary sector. This structural change is accompanied not only by a rise in per capita income but also in an improvement in many

other development indicators. It involves an upward mobility of individual occupations and incomes and a shift in rural-urban composition of the population (Kuznets, 1966).

Several developing countries are, however, deviating from this path. Either the agriculture sector continues to form a major source of livelihood for a vast section of the population or the shift in value added and/or work force structure is more towards the services or tertiary sector rather than industry. The rapid expansion of the services sector is easy to rationalize in the context of the developed countries because following the rapid progress in industrialization the demand for several services grows faster, which in turn reduces the share of the secondary sector in the total product and subsequently the work force. But in the case of the developing countries a dominance of the tertiary sector much before the secondary sector's relative size could increase to a reasonably high level does invite concerns. This is mainly because the high productivity tertiary/services sector does not have adequate openings for productive absorption of the work force pushed out of the agriculture sector. Sub-sectors like transport, communication and banking are seen to contribute significantly to the overall economic growth. The role of information technology (IT) and business process outsourcing services (BPOS) in enhancing the overall economic growth has been specially evident across countries, (World Bank 2004, Gemmel, 1986). All this has prompted some to view the tertiary sector as the engine of growth though traditionally manufacturing was seen as the driver of economic growth (Kuznets, 1966, Kaldor, 1967). However, most of these high income activities within the tertiary sector are not conducive to an absorption of the unskilled and semi-skilled work force, and hence, the mismatch between the labour demand and labour supply is expected to become unmanageably large instead of disappearing in the process of growth. A critical look at some of these issues would possibly help us deal with this situation of rapid value added growth in the high productivity sector while vast sections of the population remain at the same time engaged residually in low productivity informal sector activities.

Globalization has compelled countries to enhance growth. Several growth-oriented strategies, that include trade-openness, FDI-inflows and capital mobility,

including technology transfer, have been adopted in a big way. The argument, which is usually given in favour of technology transfer, is that the wheel that has already been adopted does not require to be rediscovered if countries seek to be cost efficient[2]. But an important question that arises in this context is whether growth that is maximized through these strategies is conducive to poverty reduction or does it merely benefits those who are located in the higher echelons, thus excluding a sizeable lot. On the other hand, strategies that aim at improving human capital formation and social infrastructure are believed to have a direct and greater effect on the overall well-being of nations by reducing poverty while also in the long run enhancing economic growth.

One important view in the context of growth and globalization suggests that economic growth is a positive function of globalization, as the latter facilitates free mobilization of resources. Hence, low income and labour surplus countries by specializing in labour intensive exportable goods can accelerate growth, generate employment and reduce poverty. However, technological innovation can bring in a shift in the demand for skilled labour and hence, can reduce wages of the less skilled, implying a rise in wage inequality (Feenstra and Gordon, 1996). Though this concern has been primarily expressed in the context of the developed countries, the same logic can be extended to the developing countries as well if they import technology from the former. Research for various Latin American countries is indicative of a widening impact of trade on wage inequality, and more importantly this is spearheaded by the notion of skill-biased technological change induced through trade. On the whole, though freer trade or trade openness is believed to enhance economic growth, the opponents of globalization view it as socially malign on several dimensions including poverty (Bhagwati and Srinivasan, 2002). However, highlighting the findings of Dollar (2001), Bhagwati and Srinivasan (2002) point out that countries, which registered significant declines in poverty, are also the ones which integrated faster into the world economy in terms of trade and direct investment, and hence according to them it would not be correct to suggest that trade openness bypasses

[2] It is argued that countries further from the frontier have lower R&D returns, implying that the cost of innovation is more in a poor country than in a rich country. Hence, it is still cheaper for a latecomer to buy the technology already invented by others than to re-invent the wheel though it is widely noted that international technology does not come cheap (UNIDO, 2005).

poverty. Rivera-Baitz and Xie (1992) also argued that knowledge diffusion and trade in ideas trough a GATT-type patent system are needed for the whole world to grow faster, and thus argued for multilateral liberalization that comprises trade in goods and ideas both. United Nations Conference on Trade and Development (2007) urged that market opening has contributed to attracting foreign capital into the services sector, which has promoted the development and growth of the domestic service market and contributed to the training of local service providers. However, before drawing any conclusive statement in this regard it is important to assess the impact of trade liberalization on the service sector employment. Since the service sector is highly heterogeneous and comprises both a high productivity component and a low productivity informal segment, a careful analysis in this regard is indeed warranted to draw effective policy lessons for the Indian economy.

The study is organized as follows. In the next section we focus on the composition of organized service sector employment and the growth in employment in various components of the organized service sector over time. Section 3 focuses on the informal service sector employment. In Section 4 using the time series data the elasticity of organized service sector employment with respect to international trade has been obtained. Based on the cross-sectional data we estimate the elasticity of informal service sector employment with respect to organized service sector employment and using this cross-sectional estimate we work out the possible effect of trade on the informal service sector employment. An indirect method of this kind had to be adopted because there is no time series information on the latter. In Section 5 we use the company level data to capture employment growth in the more recent years, i.e. after 2005. Using some of the trade-specific variables at the company level, we assess the possible effect of the international trade on the service sector. Finally, section 6 summarizes the major findings. The database of the study is drawn from various rounds of NSSO's surveys on employment and unemployment (1999-2000 and 2004-05), DGET data on organised service sector employment, trade statistics on services from RBI Bulletin and Monograph of India's Balance of Payment, unit value index of exports and imports from Economic Survey, CSO's data on gross value added and the Capital Line data at the company level.

Though DGET data on employment is said to be underestimated, the time series information is rich which helps undertake important exercises. Second, the problem of underestimation seems to be serious in the case of manufacturing rather than for the service sector, and that is the reason why in the previous part on trade liberalization and organized manufacturing we have considered the ASI data instead of DGET data. Similarly the Capital Line dataset has serious problems namely that it is not exhaustive and also it is not able to provide balanced panel information. Notwithstanding these limitations we make an attempt to utilize the firm level details to draw substantive patterns, which could not have been possible otherwise.

2. Organised Sector Employment

Of the total organized sector employment, that of the public sector constitutes a significant share. The only exceptions are manufacturing and wholesale and retail trade, hotels and restaurants – the activities which are dominated by the private sector. Since DGET data is collected on voluntary basis it is quite likely that organized private sector employment in these activities is underestimated. However, the ASI data on organized manufacturing sector employment are more comprehensive and have a better coverage, for which reason the previous section uses ASI data extensively. But for the different components of the services sector, the DGET data had to be used since they include time series information, as mentioned above. Except for the trade and hotel sector, the criticism of underestimation, however, does not seem to be applicable to other activities since they are largely located in the public sector (see Table 1).

Table 1: Share of Public Sector in Total Organised Sector Employment

Year	Manu-facturing	Utilities	Const-ruction	Trade, Hotel etc.	Transport, Storage & Communication	Finance, Business Services	Community, Social and Personal Services	Total
1975	19.86	92.87	88.27	14.64	96.77	75.15	86.20	65.43
1976	21.12	93.87	91.34	16.33	97.03	72.81	86.29	66.06
1977	22.74	94.15	92.40	21.65	97.20	74.17	86.17	66.72
1978	23.87	94.63	92.32	23.25	97.64	76.32	86.17	66.85
1979	24.21	94.91	92.56	26.05	97.34	76.30	86.12	67.06
1980	24.66	95.11	93.60	28.65	97.39	77.03	86.09	67.60
1981	24.84	95.13	93.80	29.70	97.83	79.24	85.75	67.68
1982	25.46	95.10	94.00	28.97	97.89	79.98	85.70	67.88
1983	25.96	95.11	94.28	30.03	97.95	80.83	85.88	68.54
1984	27.74	94.95	94.44	31.00	98.05	81.03	86.09	69.66
1985	28.49	95.12	94.24	32.11	98.17	81.78	86.12	70.26
1986	28.98	95.15	94.48	32.11	98.19	82.33	86.20	70.57
1987	29.69	95.17	95.33	32.60	98.28	82.18	86.26	70.99
1988	29.81	95.39	96.04	32.94	98.33	82.15	86.07	71.25
1989	29.83	95.70	94.32	34.40	98.31	82.76	86.04	71.22
1990	29.56	95.73	94.34	34.01	98.31	82.84	86.07	71.22
1991	29.24	95.77	94.03	33.33	98.28	82.46	86.14	71.28
1992	28.96	95.82	93.65	35.09	98.27	82.03	85.88	71.00
1993	28.94	96.08	94.05	32.96	98.23	81.88	85.81	71.11
1994	27.81	95.91	95.81	34.77	98.22	81.86	85.67	71.03
1995	27.17	95.90	95.65	34.47	98.17	81.41	85.57	70.72
1996	25.61	95.75	95.63	33.82	98.10	80.71	85.17	69.54
1997	24.07	95.89	95.45	34.10	98.00	80.07	85.57	69.25
1998	23.59	95.78	93.74	33.81	97.94	79.07	85.31	68.94
1999	23.25	95.91	93.97	33.54	97.81	78.34	85.21	69.06
2000	23.14	95.85	95.04	33.06	97.78	78.36	85.01	69.08
2001	22.19	94.73	94.99	32.47	97.56	77.59	85.01	68.87
2002	21.71	95.65	94.82	31.91	97.54	75.88	84.82	69.01
2003	20.99	94.81	95.56	33.58	97.38	76.37	84.55	68.81
2004	20.94	94.90	95.39	34.02	97.20	75.46	83.81	68.82
2005	20.11	94.61	94.90	32.92	97.00	72.92	83.56	68.06

Note: Total includes agriculture.
Source: Economic Survey, DGET Data.

The composition of the public sector employment shows that community, social and personal services constituted almost half of the total (Table 2). Though there was a declining tendency in the share of this activity in total public sector employment over the late seventies and the eighties, there seems to be a mild increase in the recent past. On the

other hand, the composition of the organized private sector employment is indicative of a decelerating share of the manufacturing activity and a rise in the share of community, social and personal services (Table 3).

Table 2: Composition of Public Sector Employment

Year	Manu-facturing	Utilities	Const-ruction	Trade, Hotel etc.	Transport, Storage & Comm.	Finance, Business Services	Community, Social and Personal Services
1975	7.91	3.94	7.42	0.41	18.35	3.97	50.02
1976	8.35	4.02	7.45	0.42	18.15	3.68	49.83
1977	8.91	4.09	7.33	0.55	17.92	3.88	49.17
1978	9.54	4.22	7.03	0.58	17.75	4.08	48.72
1979	9.65	4.32	7.03	0.67	17.70	4.41	48.18
1980	9.59	4.38	7.08	0.73	17.58	4.58	47.91
1981	9.70	4.41	7.03	0.76	17.50	4.83	47.50
1982	9.98	4.38	6.97	0.71	17.44	5.11	47.33
1983	9.90	4.38	6.82	0.72	17.21	5.32	47.54
1984	10.18	4.35	6.64	0.74	16.98	5.42	47.31
1985	10.20	4.40	6.64	0.76	16.76	5.69	47.04
1986	10.26	4.44	6.68	0.74	16.56	5.82	47.05
1987	10.33	4.38	6.57	0.74	16.48	5.86	47.32
1988	10.19	4.63	6.63	0.76	16.44	5.98	47.13
1989	10.10	4.71	6.21	0.81	16.12	6.09	47.76
1990	9.97	4.78	6.04	0.80	16.11	6.15	48.07
1991	9.72	4.75	6.03	0.79	15.88	6.27	48.42
1992	9.69	4.77	5.99	0.83	15.95	6.32	48.34
1993	9.58	4.82	5.97	0.77	15.81	6.48	48.52
1994	9.17	4.82	6.00	0.83	15.86	6.55	48.74
1995	9.02	4.80	5.98	0.83	15.96	6.59	48.82
1996	8.95	4.87	5.97	0.83	15.91	6.59	49.00
1997	8.49	4.89	5.80	0.84	15.81	6.62	49.83
1998	8.32	4.91	5.71	0.84	15.88	6.63	50.14
1999	8.08	4.95	5.70	0.84	15.88	6.67	50.45
2000	7.93	4.90	5.65	0.84	15.93	6.71	50.59
2001	7.47	4.89	5.65	0.85	15.90	6.69	51.36
2002	7.19	4.92	5.47	0.84	16.03	6.55	51.86
2003	6.78	4.91	5.10	0.98	15.82	7.41	51.72
2004	6.53	4.80	5.12	0.99	15.47	7.74	50.98
2005	6.28	4.78	5.06	1.02	15.28	7.82	51.38

Note: The percentages are taken relative to the row total. The percentage figures do not add up to 100 per cent because agriculture is not included in the table.
Source: See Table 1.

Table 3: Composition of Private Sector Employment

Year	Manu-facturing	Utilities	Const-ruction	Trade, Hotel etc.	Transport, Storage & Comm.	Finance, Business Services	Community, Social and Personal Services
1975	60.38	0.57	1.87	4.54	1.16	2.48	15.16
1976	60.75	0.51	1.37	4.19	1.08	2.67	15.41
1977	60.65	0.51	1.21	4.00	1.03	2.71	15.81
1978	61.35	0.48	1.18	3.89	0.87	2.56	15.76
1979	61.50	0.47	1.15	3.90	0.99	2.79	15.82
1980	61.12	0.47	1.01	3.79	0.98	2.85	16.15
1981	61.46	0.47	0.97	3.75	0.81	2.65	16.52
1982	61.76	0.48	0.94	3.67	0.80	2.70	16.68
1983	61.52	0.49	0.90	3.65	0.78	2.75	17.02
1984	60.89	0.53	0.90	3.76	0.78	2.91	17.55
1985	60.49	0.53	0.96	3.79	0.74	3.00	17.91
1986	60.32	0.54	0.94	3.76	0.73	3.00	18.06
1987	59.89	0.54	0.79	3.76	0.71	3.11	18.45
1988	59.46	0.55	0.68	3.83	0.69	3.22	18.90
1989	58.81	0.52	0.93	3.84	0.68	3.14	19.17
1990	58.78	0.53	0.90	3.84	0.69	3.15	19.26
1991	58.37	0.52	0.95	3.91	0.69	3.31	19.34
1992	58.20	0.51	0.99	3.77	0.69	3.39	19.46
1993	57.89	0.48	0.93	3.83	0.70	3.53	19.74
1994	58.39	0.50	0.64	3.81	0.71	3.56	19.99
1995	58.39	0.50	0.66	3.82	0.72	3.64	19.89
1996	59.32	0.49	0.62	3.72	0.70	3.59	19.48
1997	60.32	0.47	0.62	3.65	0.73	3.71	18.93
1998	59.82	0.48	0.85	3.67	0.74	3.90	19.17
1999	59.53	0.47	0.82	3.71	0.79	4.12	19.54
2000	58.81	0.47	0.66	3.82	0.81	4.14	19.93
2001	57.94	0.60	0.66	3.92	0.88	4.28	20.04
2002	57.72	0.50	0.66	3.97	0.90	4.64	20.66
2003	56.34	0.59	0.52	4.28	0.94	5.06	20.85
2004	54.44	0.57	0.55	4.26	0.98	5.55	21.73
2005	53.11	0.58	0.58	4.44	1.01	6.19	21.53

Note: The percentages are taken relative to the row total. The percentage figures do not add up to 100 per cent because agriculture is not included in the table.
Source: See Table 1.

In terms of growth in employment in different activities in the organized sector we may note that except (a) wholesale, retail trade and hotel etc. and (b) financing and business services the other components within the services group have experienced a decline between 2001 and 2005 (Table 4). The total organized sector employment also registered a decline during the same period. Though both wholesale, retail trade and hotel etc. and

finance and business services grew sluggishly at a little above one per cent per annum over the nineties they seem to have recovered in the recent past.

Table 4: Growth in Employment in the Organised Sector (% p.a.)

Period	Manufacturing	Utilities	Trade etc.	Transport etc.	Finance etc.	Other Services	Total
1975-85	2.05	3.79	1.60	1.99	6.20	2.34	2.30
1986-91	0.2	3.05	2.10	0.6	2.83	2.04	1.33
1992-2000	0.8	0.5	1.11	0.13	1.33	0.80	0.53
2001-05	-3.64	-2.11	2.93	-2.53	4.54	-1.23	-1.27

Source: See Table 1.

3. Effect of International Trade on Service Sector Employment

Methodological Framework

In this section, we first estimate the responsiveness of organized service sector employment (from DGET data) to export and import and gross value added. Export and import figures have been deflated by the unit value index (the base converted from 1978-79 to 1999-2000) of export and import, respectively. Gross value added figures are also taken in constant prices (1999-2000 prices). The export and import figures for different groups of services sector are derived in the manner as follows: travel account from the composition of services exports is taken to match the group that comprises trade, hotel etc.; transportation account and communication services are kept in the category of transport, storage and communication; insurance, financial services, software services and business services are taken to correspond finance and business services group; and government, news agency, personal, cultural and recreational services and other services are put under the category of community, social and personal services. A similar grouping has been followed to derive the imports for four categories of services.

Since the value added includes the impact of export and import as well, we have tried to separate out their effect by regressing value added originating from a particular activity on total non-agricultural value added (a proxy for overall growth) and the exports and

imports corresponding to that activity. After substituting the results into the first equation for organized employment we then derive the direct and indirect effects of exports and imports on employment.

In the next step we work out the elasticity of informal service sector employment with respect to formal service sector employment using NSSO's cross-sectional data on the informal sector employment for the year 1999-2000 and 2004-05. The elasticity of informal sector employment to formal sector employment has been estimated in the following manner: First, given the population figures from the censuses of 1991 and 2001 the average annual growth rates have been computed on the basis of which population for the year 1999-2000 and 2004-05 have been projected. Given the NSS estimates of worker (principal plus subsidiary) to population ratio, the absolute numbers of workers for these two years have been derived. In the next step, the NSS estimates of per thousand distribution of workers across different activities have been applied to derive the absolute number of workers in each of the activities. In the third step, NSSO's results of the survey on the informal sector workers in non-agricultural activities have been used to split the total workers in each activity into informal and formal components. NSSO's estimate of the per thousand distribution of workers in the informal sector is applied to the absolute number of workers in each activity to derive the absolute number of workers in the informal sector, which has been then deducted from the total number of workers in each activity to deduce the formal sector workers[3].

Since time series information on informal sector employment is not available in the Indian context, the elasticity of informal sector employment with respect to formal sector employment had to be calculated in this manner from the cross-sectional data. These elasticity estimates are then used to derive the impact of export and import on the informal sector employment. The assumption is that the elasticity of organized service

[3] For 1999-2000, NSS provided the absolute number of workers in the informal sector directly. The proportions have been calculated by considering the NSS estimate of population for the year 1999-2000. Since the NSS estimate of population is said to be grossly underestimated these proportions are then applied to the absolute number of workers derived from the projected population of 1999-2000 on the basis of the decennial census figures. The adjusted set of absolute number of workers in the informal sector is then used for further analysis.

sector employment from DGET data with respect to export and import would be same as that of the formal service sector employment derived from the NSS data had the latter been available annually. The other assumption is that international trade affects informal service sector only indirectly, i.e., through the organized sector. This assumption may not be unrealistic as unorganized or informal services are not exposed to international trade in any significant way.

Broad Patterns

Before turning to the econometric work it may be useful to take a look at the value added growth and export and import growth in various components of the services sector. Besides, we may examine the share of informal sector in total employment across states and the growth rate of informal and formal sector employment across activities between 1999-2000 and 2004-05.

Service sector value added has been growing very rapidly for last two decades (Table 5). In fact in terms of value added the structural shift has taken place away from agriculture and largely towards service rather than manufacturing. All the four components within the service sector exhibit fast growth. Particularly, the growth rate in value added originating from transport, storage and communication shot up to 14.01 per cent per annum during 2001-05.

Table 5: Growth in Value Added (% p.a.)

Period	Value Added: Wholesale and Retail Trade, Hotels and Restaurants	Value Added: Transport, Storage and Communication	Value Added: Finance, Real Estate Ownership and Business Services	Value Added: Community, Social and Personal Services
1975-85	4.75	5.49	6.17	3.68
1986-91	5.29	5.52	9.00	6.02
1992-2000	8.48	8.25	7.58	7.12
2001-05	8.27	14.01	8.81	6.87

Note: Growth rates are based on figures in 1999-2000 prices.
Source: Central Statistical Organisation, Government of India.

Export and import growth in all the four broad groups of the service sector have been phenomenal (Table 6). However, because of the low base the growth rates turn out to be unusually high. Only community, social and personal services registered a negative growth rate in terms of exports over the period 2001-05 and imports over the period 1986-91. In terms of composition, exports from the service sector have undergone considerable changes. For example, Figures 1 and 2 suggest that the average share of finance and business services in total exports from the service sector has increased substantially over the years, while that of wholesale and retail trade and community, social and personal services has declined perceptibly. On the other hand, in terms of imports, the share of transport, storage and communication has declined over time while that of wholesale and retail trade and community, social and personal services has increased somewhat (Figures 3 and 4).

Table 6: Growth in Export and Import (% p.a.)

Period	Export: Trade	Export: Transport, Storage and Commun-ication	Export: Finance, Business Services	Export: Community, Social and Personal Services	Import: Trade	Import: Transport, Storage and Communi-cation	Import: Finance, Business Services	Import: Community, Social and Personal Services
1975-85	10.630	1.51	11.48	12.20	23.25	11.44	6.40	13.42
1986-91	4.98	9.44	19.59	3.13	5.05	9.42	51.03	-13.24
1992-2000	6.97	12.77	29.46	22.47	23.63	9.49	7.75	32.63
2001-05	14.67	17.47	19.76	-3.69	12.47	16.11	31.33	13.87

Source: Monograph on India's BOP, July 1993; RBI Bulletin, January 2001, April 1999, Economic Survey, 2007-08, Government of India.

Figure1

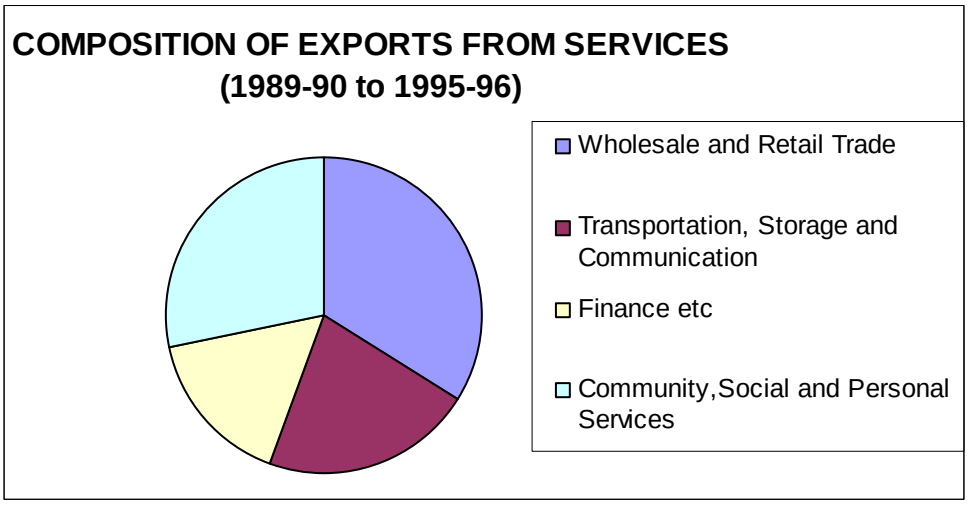


Figure 2

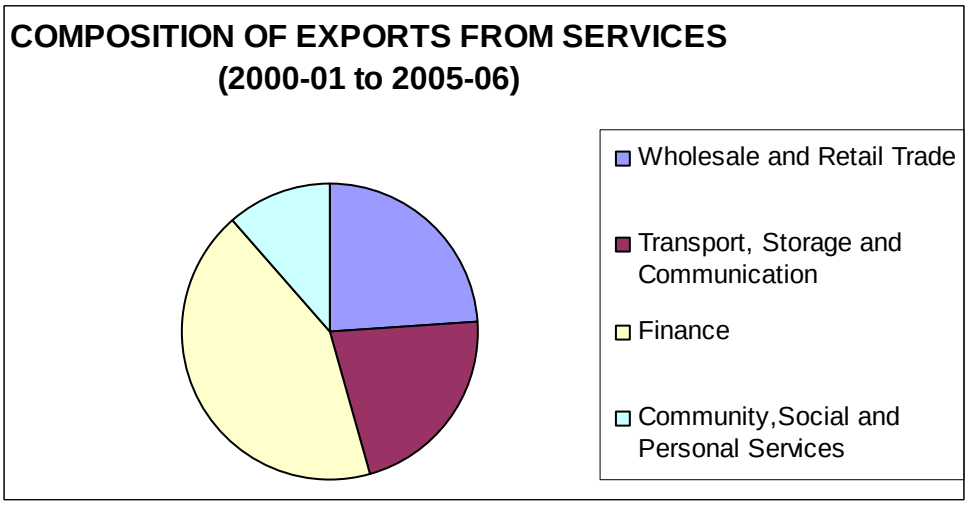


Figure 3

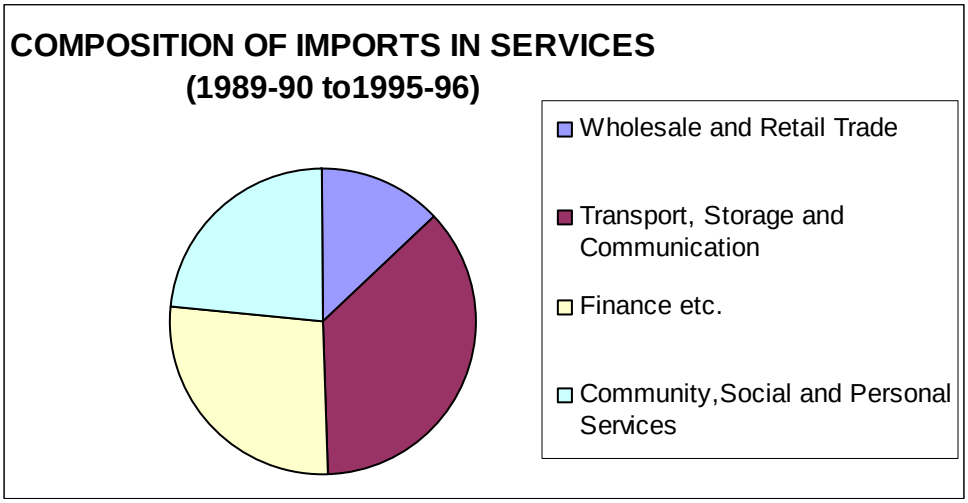
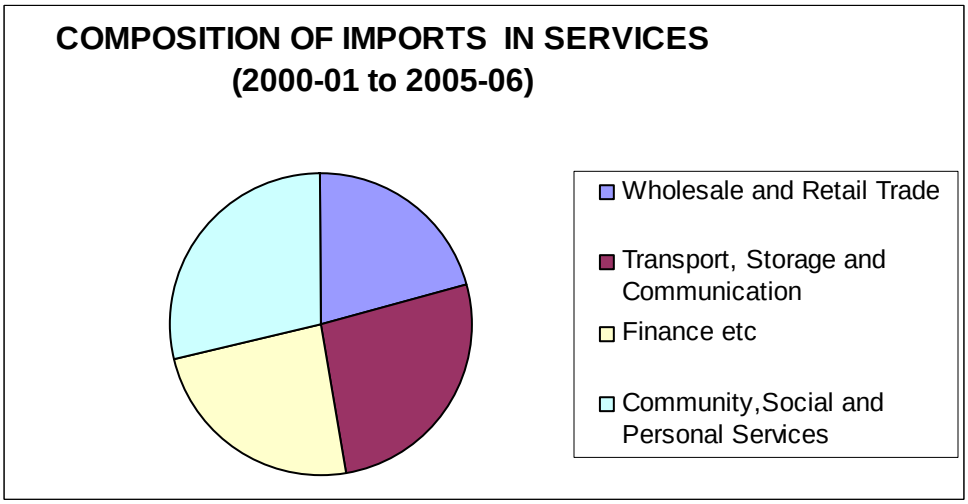


Figure 4



The share of informal sector in total non-agricultural employment has been extremely high in both rural and urban areas. Across states considerable variations exist but the relative size in most of the cases is on the high side. At the all-India level, the informal sector constituted around 78 per cent of the work force in 1999-00 (in the rural and urban areas combined), which then increased to 84.5 per cent in 2004-05 (Tables 7 and 8).

Following the methodology explained above the exponential growth rate in employment in the informal sector and the formal sector has been calculated over the period 1999-00 to 2004-05 (Table 9). Much of the growth in total employment seems to have taken place

due to employment growth in the informal sector. The formal sector employment growth in most of the non-agricultural activities has been negative during this period. At the all-India level only finance and business services experienced a positive employment growth in the formal segment (Table 10). Some of the service sector activities like trade, hotel etc., transport, storage and communication and community social and personal services which experienced a rapid value added growth do not however, reveal a positive employment growth in the formal component of these groups. In other words, the rise in value added in these activities seems to have come across through a rise in capital intensity in the formal segment. These findings tend to go against the common belief that the service sector is highly employment intensive. At least with regard to the formal segment of the service sector it is difficult to subscribe to such a view.

Table 7: Relative Size of the Informal Sector: 1999-2000 (%)

State	Inf. Mfg	Inf. Cons.	Inf. Trade, Hotel	Inf. Transport	Inf. Finance	Inf. Ser.	Inf. Agg.
Andhra Pradesh	73.41	76.52	91.89	67.90	58.76	47.87	71.15
Arunachal Pradesh	6.34	20.45	49.86	42.07	7.42	1.41	12.89
Assam	82.26	62.96	86.42	65.85	46.22	34.46	58.51
Bihar & Jharkhand	74.93	49.02	78.29	59.53	63.10	36.04	62.57
Goa	30.48	68.71	80.08	64.13	26.81	14.63	55.82
Gujarat	73.45	69.86	91.07	67.46	56.02	25.53	67.38
Haryana	63.84	71.93	82.48	66.13	39.93	25.30	62.83
Himachal Pradesh	66.93	59.79	85.41	70.25	34.21	11.50	52.13
Jammu and Kashmir	92.17	80.41	87.92	60.30	58.34	9.47	59.41
Karnataka	76.30	71.57	86.96	66.88	46.54	27.55	67.23
Kerala	82.60	85.08	79.72	76.05	54.03	34.63	72.38
Madhya Pradesh & Chattisgarh	71.00	53.78	90.28	66.25	54.88	26.91	62.94
Maharashtra	67.46	63.76	88.91	57.85	48.64	25.83	61.87
Manipur	90.60	91.81	87.79	79.80	34.55	12.39	54.47
Meghalaya	74.94	67.67	83.04	69.63	14.40	5.60	42.00
Mizoram	96.20	71.80	92.71	87.69	40.73	5.30	44.35
Nagaland	75.95	51.45	85.24	65.51	47.64	4.36	23.93
Orissa	83.88	60.31	89.35	57.20	47.95	33.83	68.92
Punjab	75.79	78.03	85.60	76.50	50.21	33.47	69.78
Rajasthan	85.76	76.93	93.93	73.27	54.39	28.06	72.54
Sikkim	76.50	66.59	96.63	79.74	39.68	4.66	41.24

Tamil Nadu	81.47	69.75	91.09	63.66	49.69	32.08	71.60
Tripura	76.65	57.00	72.96	79.35	37.00	28.61	47.57
Uttar Pradesh & Uttaranchal	82.88	74.15	91.73	75.67	59.04	44.79	75.51
West Bengal	84.22	73.16	90.83	74.13	53.86	36.77	74.95
Andaman	68.70	49.21	77.68	40.20	67.35	13.90	45.75
Chandigarh	62.03	77.92	89.13	80.89	60.44	17.89	57.21
Dadra	65.31	30.00	101.80	94.59	132.37	29.83	66.33
Daman	44.75	84.40	98.46	68.50	45.66	44.45	62.22
Delhi	80.21	66.54	89.55	68.95	51.53	15.18	62.81
Lakshadweep	23.53	35.49	10.89	24.29	0.00	0.33	12.64
Pondicherry	68.43	69.55	91.87	83.99	67.99	26.21	68.55
All-India	77.91	69.70	88.78	67.37	53.45	33.07	68.46

Note: Aggregate is the combination of all the activities shown in the table.
Source: Informal Sector in India, 1999-2000, Report No. 459(55/2.0/2), National Sample Survey Organisation, Ministry of Statistics and Programme Implementation, May 2001.

Table 8: Relative Size of the Informal Sector: 2004-05 (%)

State	Inf. Mfg	Inf. Cons.	Inf. Trade, Hotel	Inf. Transport	Inf. Finance	Inf. Ser.	Inf. Agg.
Andhra Pradesh	87.66	92.59	95.56	80.18	68.39	79.66	87.13
Arunachal Pradesh	43.78	4.61	47.78	64.44	18.20	29.48	30.49
Assam	84.63	72.98	88.58	74.26	55.91	53.61	73.05
Bihar	93.67	76.98	89.85	78.41	83.55	77.87	85.95
Chattisgarh	80.16	78.96	92.91	69.51	95.39	59.50	78.08
Delhi	80.68	70.55	93.71	65.82	43.83	45.96	70.96
Goa	47.53	92.73	89.09	72.04	97.43	43.73	70.88
Gujarat	73.46	90.07	96.13	84.09	75.14	68.84	80.73
Haryana	65.54	61.35	92.12	84.41	76.65	65.77	73.73
Himachal Pradesh	59.41	45.59	92.28	56.22	76.54	55.18	60.01
Jammu and Kashmir	88.94	59.36	89.27	85.82	79.87	51.42	74.02
Jharkhand	70.18	69.96	88.43	68.29	75.59	68.83	73.88
Karnataka	87.22	85.98	95.98	83.36	52.37	68.39	83.76
Kerala	87.16	88.75	95.54	82.00	82.11	53.21	82.00
Madhya Pradesh	67.84	75.11	89.32	73.51	81.77	66.24	75.15
Maharashtra	77.14	80.16	94.51	70.24	72.29	66.10	78.49
Manipur	81.35	67.81	82.36	76.38	22.83	37.95	64.77
Meghalaya	81.35	83.12	83.08	65.77	100.00	14.31	50.56
Mizoram	87.13	56.26	80.71	77.97	63.38	34.66	55.38
Nagaland	84.28	39.99	75.70	44.23	19.98	30.94	51.99
Orissa	90.26	71.34	94.10	74.93	72.60	71.23	82.99
Punjab	88.39	86.60	95.00	78.07	93.48	56.01	82.81
Rajasthan	94.80	84.02	94.39	87.43	86.55	60.12	85.02

Sikkim	86.86	61.77	74.19	81.20	0.00	17.67	51.20
Tamil Nadu	89.40	91.11	96.88	72.32	58.42	69.94	84.92
Tripura	84.06	65.48	75.69	70.16	83.41	26.90	51.82
Uttaranchal	73.65	86.76	90.04	81.16	80.94	49.66	74.78
Uttar Pradesh	88.71	84.00	93.84	77.36	83.54	76.26	86.29
West Bengal	89.22	88.35	92.98	78.00	74.77	67.92	84.19
Andaman	74.44	62.11	86.41	69.31	53.70	12.07	51.61
Chandi	77.92	85.83	88.55	53.60	97.50	59.44	72.67
Dadra	63.98	87.84	86.93	10.00	100.00	50.54	64.22
Daman	18.33	17.35	58.90	93.73	90.83	70.31	50.32
Lakshadweep	83.36	73.39	53.81	37.73	55.20	42.09	59.52
Pondicherry	66.87	96.86	91.65	86.59	83.45	50.22	76.77
All-India	84.54	81.95	94.44	77.38	69.16	67.12	82.05

Note: Aggregate is the combination of all the activities shown in the Table.
Source: Informal Sector and Conditions of Employment in India, 2004-05, Report No. 519(61/10/7), National Sample Survey Organisation, Ministry of Statistics and Programme Implementation, April 2007.

Table 9: Growth Rate in Employment in the Informal Sector: 1999-2000 to 2004-05 (% p.a.)

State	Inf. Mfg	Inf. Cons.	Inf. Trade, Hotel	Inf. Transport	Inf. Finance	Inf. Ser.	Inf. Agg.
Andhra Pradesh	10.96	7.99	6.43	11.98	11.53	11.50	9.38
Arunachal Pradesh	26.71	-25.86	7.93	42.33	41.99	71.91	25.88
Assam	1.90	11.84	5.09	7.44	-7.22	3.22	4.72
Bihar & Jharkhand	4.61	24.45	10.60	14.25	14.94	13.18	11.12
Goa	9.07	2.72	4.74	3.21	27.13	33.59	7.31
Gujarat	9.88	7.19	3.99	7.36	10.76	21.01	8.60
Haryana	10.81	6.82	5.13	13.00	26.96	25.15	10.49
Himachal Pradesh	6.59	0.72	10.48	5.34	16.24	33.35	9.07
Jammu and Kashmir	20.31	-1.85	4.61	23.32	6.29	35.87	12.36
Karnataka	6.14	9.05	5.73	11.28	8.54	22.52	8.76
Kerala	2.29	4.43	2.57	5.54	15.37	13.92	4.86
Madhya Pradesh & Chattisgarh	5.04	17.86	5.53	4.49	20.70	22.62	9.73
Maharashtra	8.35	11.89	4.97	6.77	18.08	23.12	9.78
Manipur	6.77	13.56	8.38	9.58	-3.92	24.31	10.58
Meghalaya	32.29	7.66	5.91	4.81	39.67	25.76	11.96
Mizoram	6.37	-11.25	0.53	3.98	5.57	40.34	6.84
Nagaland	24.07	9.50	22.70	8.47	-8.91	36.78	23.14
Orissa	7.95	14.59	9.01	16.93	23.64	19.37	11.44
Punjab	10.20	12.35	4.59	2.06	23.39	14.39	8.66
Rajasthan	9.46	7.78	5.70	7.45	16.45	19.81	9.04

Sikkim	10.24	18.61	4.07	13.11		26.66	10.81
Tamil Nadu	5.73	11.06	3.63	4.81	16.33	18.55	7.25
Tripura	11.20	12.59	2.87	6.75	12.61	-0.95	4.89
Uttar Pradesh & Uttaranchal	7.13	14.64	4.65	6.27	15.64	10.81	7.88
West Bengal	2.72	13.11	4.07	4.66	17.36	17.00	6.11
Andaman	-1.40	12.76	11.70	18.87	10.86	9.46	11.23
Chandigarh	8.62	-2.22	-5.43	9.07	22.56	31.56	9.08
Dadra	8.72	24.24	23.73	-47.22	39.37	29.22	10.75
Daman	-23.57	-10.05	-10.42	17.03	37.56	10.08	-3.84
Delhi	4.61	7.74	3.97	6.88	10.93	23.71	6.77
Lakshadweep	38.92	40.06	3.44	16.57		97.71	35.95
Pondicherry	-2.30	9.07	-0.68	15.97	9.32	16.23	3.73
All-India	6.82	11.39	5.27	7.79	17.00	16.54	8.54

See Tables 7 and 8.

Table 10: Growth Rate in Employment in the Formal Sector: 1999-00 to 2004-05 (% p.a.)

State	FMfg	FCons.	FTrade, Hotel	FTransport	FFinance	FSer.	FAgg.
Andhra Pradesh	-7.95	-18.89	-6.41	-0.98	3.17	-17.50	-10.81
Arunachal Pradesh	-22.15	7.56	9.59	24.04	21.57	4.47	4.15
Assam	-1.52	2.58	1.14	-0.62	-15.00	-12.53	-8.35
Bihar & Jharkhand	-7.50	3.93	-6.56	0.07	-2.13	-20.20	-8.28
Goa	-5.45	-32.48	-9.44	-4.10	-65.69	3.35	-5.81
Gujarat	9.88	-20.10	-13.78	-11.36	-6.52	-16.25	-5.55
Haryana	9.32	16.39	-13.08	-7.40	-4.98	-9.56	0.35
Himachal Pradesh	13.07	12.19	-3.80	17.53	-20.49	-11.63	2.66
Jammu and Kashmir	27.92	18.82	1.95	-4.33	-14.54	-10.42	-0.96
Karnataka	-8.88	-8.75	-19.76	-6.90	3.88	-12.25	-9.67
Kerala	-4.87	-2.07	-31.36	-1.67	-11.89	-1.36	-6.20
Madhya Pradesh & Chattisgarh	5.74	-2.35	5.87	-1.30	-8.88	-9.50	-2.53
Maharashtra	-1.40	-4.74	-10.30	-4.07	-2.20	-11.33	-6.42
Manipur	22.61	47.00	17.03	13.58	7.66	-4.97	1.99
Meghalaya	24.74	-9.45	5.85	8.35		5.05	5.06
Mizoram	32.73	2.41	22.77	17.97	-12.90	-4.62	-2.02
Nagaland	13.48	18.77	35.05	25.94	16.95	-8.93	-1.58
Orissa	-3.61	4.72	-3.83	0.83	2.51	-12.17	-4.32
Punjab	-7.57	0.38	-18.64	0.28	-29.68	-4.18	-6.05
Rajasthan	-12.69	-1.33	4.02	-11.17	-17.26	-7.23	-6.25
Sikkim	-3.94	22.81	50.05	11.24	3.36	-2.94	2.77
Tamil Nadu	-7.29	-18.76	-18.56	-3.18	9.28	-13.35	-8.82
Tripura	1.73	5.42	0.00	16.58	-30.32	0.76	1.48

Uttar Pradesh & Uttaranchal	-1.84	2.27	-1.03	4.17	-9.33	-14.22	-5.41
West Bengal	-6.06	-7.35	-1.73	0.40	-1.27	-8.84	-5.42
Andaman	-7.05	2.25	-0.35	-5.37	22.37	12.71	6.53
Chandigarh	-6.79	-13.02	-4.26	35.04	-42.22	-6.55	-4.67
Dadra	9.88	-32.24		53.94	!	11.68	12.62
Daman	2.10	54.93	65.57	-21.52	-11.78	-11.63	5.89
Delhi	4.01	4.02	-7.08	9.73	17.11	-7.47	-0.62
Lakshadweep	-16.88	7.82	-41.65	3.85	-2.17	-10.35	-10.41
Pondicherry	-0.87	-42.97	-0.11	11.82	-7.97	-4.65	-4.60
All-India	-1.94	-2.21	-10.01	-2.30	3.61	-11.83	-6.35

See Tables 7 and 8.

4. Econometric Analysis

For estimating the elasticity of organized service sector employment with respect to export and import we have controlled for value added, that is, a proxy for growth. Log transformation of the organized service sector employment - each of the groups separately - has been regressed on the log transformation of value added from the corresponding group and the export and import figures derived for the corresponding group. Autoregressive distributed lag model (ARDL) has been applied and the Swartz Bayesian criterion has been followed to determine the appropriate lag length of the dependent variable. In most of the cases a one year lag is found to be suitable.

Then the long-run elasticity coefficients have been derived from the ARDL model[4]. However, to facilitate a simple interpretation of the results we have reported in the text the OLS estimates of the parameters obtained from the equation with no lag of the dependent variable (Table 11).

Table 11: Regression Results based on Time Series Data (OLS Estimates)

Explanatory Variables	Dep. Var: ln(Employment in Organised Wholesale, Retail Trade, Hotel, etc.)	Dep. Var: ln(Employment in Organised Transport, Storage and Communication	Dep. Var: ln(Employment in Organised Finance, Business Services etc.)	Dep. Var: ln(Employment in Organised Community, Social and Personal Services)
Ln(Exports)	0.066 (3.21)*	-0.12 (-2.92)*	-0.17 (-4.63)*	-0.03 (-1.42)
Ln(Imports)	-0.0008 (-0.05)	0.14 (5.84)*	-0.07 (-2.25)*	-0.0007 (-0.02)
Ln(Value Added)	0.14 (3.32)*	0.03 (0.48)	0.99 (7.44)*	0.27 (4.38)*
Constant	-3.07 (-8.61)*	0.55 (1.63)	-9.36 (-8.30)*	-0.54 (-1.00)
No. of Observations	31	31	31	29
Adj. R^2	0.96	0.73	0.94	0.81

Note: Figures in parentheses are t-ratios.* represents significance at 5 per cent level.

[4] Estimated Long-Run Coefficients Using the ARDL Approach (1977 to 2005): ARDL (1,0,0,0)

Explanatory Variables	Dep. Var: ln(Employment in Organised Wholesale, Retail Trade, Hotel etc.	Dep. Var: ln(Employment in Organised Transport, Storage and Communication	Dep. Var: ln(Employment in Organised Finance, Business Services etc.	Dep. Var: ln(Employment in Organised Community, Social and Personal Services
Ln(Exports)	0.09 (2.89)*	0.55 (0.30)	0.06 (0.29)	-0.03 (-0.82)
Ln(Imports)	002 (0.64)	0.61 (0.43)	-0.10 (-0.83)	
ln(Value Added)	0.07 (1.05)	-3.08 (-0.35)	0.27 (0.42)	0.63 (3.69)*
Constant	-2.64 (-4.62)*	26.27 (0.36)	-2.30 (-0.38)	-4.91 (-2.42)*

Note: Figures in parentheses are t-ratios. * represents significance at 5 per cent level.

The time series estimates are not indicative of an invariably strong positive impact of exports and imports on the employment in the organized service sector, after controlling for value added. In the case of organized sector employment in wholesale, retail trade and hotels, etc. exports and value added both show a positive and significant effect while the impact of import is statistically insignificant. In the case of transport, storage and communication the value added turns out to be insignificant. On the other hand, while imports show a positive impact, exports exert a negative influence on the organized sector employment in this activity. Organised sector employment in finance and business services is not impacted positively either by exports or imports though value added unravels a positive effect. Both exports and imports take a negative sign in this case. Organised sector employment in community, social and personal services is not statistically responsive to exports and imports, while value added shows a positive effect. On the whole, exports and imports are not seen to impact organized service sector employment in a positive and significant way.

One may argue that the growth effect measured in terms of value added originating from a particular sector is not independent of export and import effects. Hence, there is a need to net out the export and import effects from growth so that the residue can be attributed to pure growth effect. Also these export and import effects included in the growth effect can be added to the export and import effects obtained after controlling for growth effect in the equations given in Table 11. The adjusted estimates of export and import effects will then represent the total (direct plus indirect) effects of export and import on employment. In order to separate out the export and import effects from the value added growth of a particular sector we have estimated first the following function. The log of value added originating from a particular activity i (ln VA(i)) has been regressed on the log of the total non-agricultural value added in the economy (ln NAGVA) taken as a proxy for overall growth and the log of exports (ln E(i)) and imports (ln I(i))

corresponding to that activity: ln VA(i) = F(ln NAGVA, ln E(i), ln I(i))[5]. After getting the estimates of the parameters in this equation they are then substituted in the corresponding equations given in Table 11. The results reported in Table 12 represent the elasticity of employment in a particular activity i with respect to total non-agricultural GDP in the economy, and exports and imports corresponding to the ith activity. The effect of exports on employment is positive only in trade and hotel activity. However, the magnitude is nominal. In all other three activities export has a negative effect. On the other hand, though imports have positive effect on employment in all the three activities except finance and business services the magnitude is again seen to be nominal.

Table 12: Adjusted Elasticity of Organised Service Sector Employment

Elasticity with respect to	Elasticity of organized employment in various activities			
	Wholesale, Retail Trade, Hotel, etc.	Transport, Storage and Communication	Finance, Business Services, etc.	Community, Social and Personal Services
Exports	0.0688	-0.1097	-0.259	-0.034
Imports	0.00297	0.08	-0.0007	0.0039
Non-Ag Value Added	0.1218	0.649	1.168	0.2268

The elasticity of informal service sector employment – for each group separately - has been calculated with respect to the corresponding formal sector employment. These estimates are obtained from the cross-sectional data as time series information are not

[5] Regression Results of Value added of a particular activity on total non-agricultural value added, and exports and imports corresponding to that activity.

Explanatory Variables	Dep. Var: ln(Value Added in Wholesale, Retail Trade, Hotel, etc.)	Dep. Var: ln(Value Added in Transport, Storage and Communication)	Dep. Var: ln(Value Added in Finance, Business Services etc.)	Dep. Var: ln(Value Added in Community, Social and Personal Services)
Ln(Exports)	0.025 (0.62)	0.019 (0.35)	-0.093 (-2.93)*	-0.15 (-1.08)
Ln(Imports)	0.027 (0.86)	-0.107 (-2.84)*	0.07 (4.26)*	0.017 (0.94)
Ln(Non-Ag Value Added)	0.0878 (11.26)*	1.18 (11.44)*	1.19 (10.69)*	0.84 (23.88)*
Constant	0.076 (0.010)	-3.34 (-4.38)	-3.50 (-3.13)	0.045 (1.32)
No. of Observations	32	31	32	30
Adj. R^2	0.99	0.99	0.99	0.99

available. The rationale underlying this specification is as follows: There exist certain inter-linkages between the formal and the informal sectors. These can be conceived in terms of backward and forward linkages. As Papola (1981) pointed out, the informal sector grows in situations of both sluggish industrialization and rapid industrialization. When there is sluggish industrial growth a residual absorption of labour takes place within the informal sector. On the other hand, rapid industrialization opens up opportunities for the growth of ancillary activities, outsourcing and sub-contracting, etc. which are basically conducted within the informal sector. However, the former demonstrates a situation of supply-push phenomenon which reduces earnings in the informal sector while the latter throws up opportunities for demand induced activities to grow and result in increased earnings.

The relationship between the informal and formal sector employment is seen to be positive. For each of the four groups, the elasticity turns out to be almost unity (Table 13). In order to test the stability of the relationship between the informal and the formal sector we have estimated these equations from 1999-2000 as well as 2004-05 data (see Table in the Appendix) The results are more or less same. Table 14 gives estimates based on the pooled data for both the years.

Table 13: Elasticity of Informal Service Sector to Formal Service Sector Employment

	Dep. Var: ln(Employment in Informal Wholesale, Retail Trade, Hotel, etc.)	Dep. Var: ln(Employment in Informal Transport, Storage and Communication)	Dep. Var: ln(Employment in Informal Finance, Business Services, etc.)	Dep. Var: ln(Employment in Informal Community, Social and Personal Services)
ln(Employment in Formal Wholesale, Retail Trade, Hotel etc.)	1.13 (18.31)*			
ln(Employment in Formal Transport, Storage and		1.00 (22.56)*		

Communication)				
ln(Employment in Formal Finance, Business Services, etc.)			0.98 (15.21)*	
ln(Employment in Formal Community, Social and Personal Services)				1.24 (14.30)*
Constant	0.64 (0.98)	0.90 (1.92)	0.57 (0.90)	-3.61 (-3.39)*
No. of Observations	63	64	59	64
Adj. R2	0.84	0.89	0.80	0.76

Note: Figures in parentheses are t-ratios.* represents significance at 5 per cent level. Estimates are obtained based on the pooled cross-sectional data for 1999-2000 and 2004-05.

Based on these estimates the elasticity of informal sector employment with respect to exports and imports are shown below. One of the crucial assumptions in this exercise is that international trade (exports and imports) does not have any direct effect on the informal sector. The link is perceived through the formal sector. Thus the impact of export and import on the informal service sector employment is almost equal to the impact on the organized service sector employment (Table 14). The time series estimates did not show an invariably strong positive impact of exports and imports on the employment in the organized service sector. Similar conclusions can be drawn relating to the informal sector as well. Therefore we may conclude that exports and imports are not seen to impact the service sector employment – whether formal or informal - in a positive and significant way.

Table 14: Effect of Export and Import on Informal Service Sector Employment

	Employment in Informal Wholesale,	Employment in Informal Transport,	Employment in Informal Finance,	Employment in Informal Community,

	Retail Trade, Hotel etc.	Storage and Communication	Business Services etc.	Social and Personal Services
Exports	0.07	-0.12	-0.16	-0.04
Imports	-0.00089	0.14	-0.07	-0.0007

5. Analysis Based on Company Level Data

From the company level data (Capital Line) we have calculated the growth rate of employment in the service sector units for the recent years. It may be noted from Table 15 that a number of firms experienced rapid growth in employment during 2006-08. Similarly, between 2005 and 2007 several firms in the services sector registered a fast growth in employment (Table 15a). Though there are firms which experienced a decline in absolute terms, their number is quite limited. On the other hand, the magnitudes of the positive growth rates in several firms have been in double digit.

Table 15 a: Growth Rates of Employment in Different Companies in the Service Sector (% per annum)

Magnitudes and Sign	Period	Growth Rates
Negative	2006-08	-40.19, -26.53, -14.28, -5.43, -5.18, 5.01, -4.35, -4.28, -2.44, -2.22, -1.99, -1.92, -1.77, -1.77, -1.67
Positive but Low	2006-08	0.82, 2.41, 2.94, 3.66, 4.42, 4.84
Moderate and Positive	2006-08	6.21, 6.57, 6.72, 6.76, 7.90, 7.92
High and Positive	2006-08	11.73, 11.82, 11.98, 12.07, 12.12, 12.86, 12.98, 13.89, 14.45, 15.40, 17.07, 18.39, 18.61, 18.66, 20.52, 21.24, 21.34, 21.68, 21.95, 22.07, 22.34, 23.67, 24.91, 26.26, 26.66, 27.52, 29.79, 32.53, 34.71, 34.95, 35.06, 36.62, 37.20, 37.37, 40.35, 42.40, 42.90, 43.14, 45.81, 46.67, 53.85, 54.37, 58.90, 60.05, 61.1
One Negative, Another Positive	2007-08	-51.68, 24.0
Negative	2005-07	-15.11, -12.67, -5.38, -3.14, -1.80, -1.60, -1.56
Low/Moderate and Positive	2005-07	2.38, 5.68, 8.55, 9.27
High and Positive	2005-07	11.81, 12.92, 18.13, 20.42, 25.90, 26.11, 27.81, 30.79, 31.08, 44.84, 53.83
Negative, 0 & Positive	2006-07	-18.2, 0.00, 37.5

Negative	2004-06	-69.6, -22.6, -6.58, -2.67
Low/Moderate and Positive	2004-06	2.33, 7.66
High and Positive	2004-06	28.94, 31.21, 31.67, 45.81
High and Positive	2005-06	17.43, 26.86

Source: Capital Line Data.

Based on the data on employment for 256 firms in the service sector the growth rate turns out to be 7.1 per cent in 2003-04, 11.7 per cent in 2004-05, 18.9 per cent in 2005-06, 11.5 per cent in 2006-07 and 8.2 per cent in 2007-08. On the other hand, based on the wage bill reported by 510 firms in the service sector the employment figures have been generated by dividing the wage bill by the average wage rate. Employment growth in the service sector according to these estimates has been 7.7 per cent in 2002-03, 7.60 per cent in 2003-04, 15.80 per cent in 2004-05, 13.20 per cent in 2005-06, 15.30 per cent in 2006-07 and 11.60 per cent in 2007-08. However, based on the corporate sector data (Corporate Sector, CMIE, 2008) we have tried to calculate the employment growth rate for around 3000 firms in the service sector and these growth rates reported in Table 15(b) are not indicative of any substantive increase in employment opportunity in the service sector. For 2002-03 and 2005-06, the growth rates turn out to be negative and for 2003-04 it has been perceptibly low. The only exceptions are 2004-05 and 2006-07 corresponding to which the growth rates have been 6.9 per cent and 7.7 per cent, respectively. From the NSS 62nd round (2005-06) results it is again calculated that the total service sector growth has been only 1.58 per cent over 2004-05.

Table 15 (b): Estimated Employment Growth Rate (% p.a.)

	Growth rate based on data for firms that have reported employment	Growth rate based on data for firms that have reported wage-bill	Growth rate based on data for all corporate sector firms in services as reported in CMIE publication
2000-01			
2001-02			
2002-03		7.7%	-1.3%
2003-04	7.1%	7.6%	1.1%
2004-05	11.7%	15.8%	6.9%
2005-06	18.9%	13.2%	-1.7%
2006-07	11.5%	15.3%	7.7%

2007-08	8.2%	11.6%	
	Data for 256 firms used (Capital Line Data)	Data for 510 firms used(Capital Line Data)	data for about 3000 firms (CMIE, Data)

On the whole, we cannot therefore conclude equivocally that employment growth in the services sector has been rapid in the recent past when the output growth has accelerated significantly. So, economic growth does not seem to be generating employment in a significant way. In some of the service sector firms employment, however, seems to have shot up in last two two/three years. Production in terms of sales also accelerated in these firms. However, what needs to be assessed is the effect of trade liberalization on employment growth at the company level. More specifically we pose the question did exports raise the employable capacity of the firms. Similarly, what impact did import of capital goods and raw materials have on employment in the service sector firms is another important question.

Based on the company-level data the following equations have been estimated:

1. LnEMP = f(lnRSALES, lnRDCAP, lnRDRAWMAT, lnRIMCAP, lnRIMRAWMAT, lnREXP)
2. EMP/RESALES= g(DCAP/SALES, DRAWMAT/SALES, IMCAP/SALES, IMRAWMAT/SALES, EXP/SALES)

In the first equation, the log transformation of employees is regressed on the log transformation of the following variables: RSALES is real sales or operating income (in 1999-2000 prices) of the company derived from the nominal figures on sales/operating income deflated by the implicit price deflator. RDCAP is the real domestic capital defined as gross block minus imported capital expenditure, deflated by the same implicit price deflator. RDRAWMAT is the real domestic raw materials derived by deducting from the total raw materials the imported raw materials and deflating the series by the implicit price deflator. RIMCAP, RIMRAWMAT and REXP represent the real imported capital, imported raw material and exports. In the second equation, EMP/RESALES is

the ratio of employees to real sales, DCAP/SALES is the proportion of domestic capital to sales, DRAWMAT/SALES is the domestic raw materials to sales, IMCAP/SALES is the imported capital to sales, IMRAWMAT/SALES is the imported raw materials to sales and EXP/SALES is the export to sales.

The equations have been estimated by OLS because not too many observations per firm are available over time (Table 16). For equation 1 in which the variables are considered mostly in log form the number of observations is only 100. Entries which have zero values cannot be included in the log form. However, in equation 2 the number of observations is 374. The results from the first equation indicate that the elasticity of employees with respect to sales is extremely high and positive. Exports and imported capital and imported raw materials do not have a positive and significant impact on employment. On the other hand, domestic capital has a complementary relationship with employment though domestic raw materials are indicative of a negative effect on employment. From the second equation again the positive effect of domestic capital and the negative effect of domestic raw materials on employment to sales ratio are evident. The ratio of imported capital or imported raw materials or exports to sales does not impact employment to real sales positively. All these findings are indicative of the absence of any positive effect of trade liberalization on employment in the service sector. We may further recall that these findings are quite consistent with the findings based on macro data.

Table 16: Regression Results Based on the Company-Level Data

Exp. Var	Equ. 1 (Dep. Var. lnEMP)	Exp Var.	Dep. Var. EMP/RESALES
lnRSALES	0.87 (12.67)*	DCAP/SALES	0.007 (1.96)*
lnRDCAP	0.55 (9.76)*	DRAWMAT/SALES	-0.04 (-3.45)*
lnRDRAWMAT	-0.34 (-8.85)*	IMCAP/SALES	-0.07 (-1.66)
lnRIMCAP	-0.03	IMRAWMAT/SALES	0.03

	(-0.96)		(0.88)
lnRIMRAWMAT	0.06 (1.64)	EXP/SALES	-0.03 (-2.11)*
lnREXP	-0.107 (-4.15)*		
Constant	1.44 (6.37)*	Constant	8.71 (15.45)*
Adj. R2	0.93		0.07
	100		374

Note: Figures in parentheses are t-ratios.* represents significance at the 5 per cent level.

6 Summing-up

This study has made an attempt to assess the impact of trade liberalization on service sector employment. The service sector value added in the Indian context has been growing quite rapidly for the last several years. Hence, several researchers are of the view that the service sector could play the role of an engine of growth. In the backdrop of this view we therefore made an attempt to assess whether the service sector created employment opportunities on a large scale and if the service sector value added growth can be treated pro-poor. More importantly, the effect of trade liberalization on employment potential is judged from the past data because trade is indeed considered to be the engine of growth. Given the limitations of the data, these propositions, however, had to be examined quite carefully.

Based on the time series macro data, the elasticity of organised service sector employment with respect to value added and exports and imports have been estimated. These exercises have been pursued separately for four broad groups of services: trade and hotels, etc, finance and business services, transport, storage and communication and community, social and personal services. After controlling for growth it is difficult to identify a positive and significant impact of international trade on employment in the organized service sector. In other words, international trade does not seem to be contributing to employment growth in the organized service sector. We have also tried to work out the direct and indirect effects of exports and imports on employment after deciphering their effects included in overall growth. However, the positive effects are mostly negligible.

Since there is no time series information on the informal service sector employment NSS surveys on the informal sector employment for the years 1999-00 and 2004-05 were considered and the cross-sectional information were used to examine the relationship between the formal and informal sectors. Splitting the employment into formal and informal sectors across activities, the informal sector employment growth rate turned out to be positive whereas the formal sector employment growth rate was negative across several activities. Within the service sector only the formal component of finance and business services grew positively while the other three categories registered negative employment growth rates. The elasticity of informal to formal sector employment has been calculated and based on these estimates the impact of international trade on the informal services sector employment has been worked out. The impact does not seem to be greatly different from what was observed in the case of the organized service sector employment.

Since more recent data on employment were not available from the NSSO we had to use the company-level data in order to understand employment growth and its relationship with economic growth which has indeed shot up in the recent past. Though Capital Line data are indicative of a high employment growth in the service sector during the period 2005 to 2008, CMI data for around 3000 firms in the service sector do not unravel such a pattern. It would be, therefore, misleading to conclude that in the recent past the acceleration in economic growth is able to translate itself into employment growth as well.

Since some of the firms in the service sector as per the Capital Line data recorded an employment growth in double digit, suggesting possibility of close links between growth and employment, we have tried to assess the effect of international trade on employment in these units. However, as per the findings, international trade does not seem to be an important determinant of employment, implying that trade liberalization per se did not reveal any significant contribution to employment growth. However, in terms of policy issues this seems to have important implications. The question is how to make the service

sector more responsive to international trade. Trade with developing countries will possibly hold brighter prospects of growth in employment intensive service activities. Second, several services in which India has a comparative advantage over other countries have to receive supportive measures for their expansion so that foreign demand and domestic demand do not conflict. For example, the health sector can be developed extensively to tap the demand potential for such services from several developing as well as developed countries. The price differences with respect to the developed countries can attract a great deal of foreign demand for health services in India. However, supplies often are too scarce even to meet the domestic demand. Similarly, in the education sector India has a great potentiality to attract foreign demand, particularly, from South and East Asia given her comparative advantages in terms of price differentials and medium of instruction.

More reforms relating to the financial institutions can invite foreign savings and this may result in employment growth as management of such savings will be employment intensive. Investment of such resources in productive activities will indeed open up new employment opportunities. The backward areas in India require massive infrastructural investment in order to get integrated with the rest of the world. Activities like business services which have been India's comparative advantage can expand further to create employment opportunities on a large scale. Instead of concentrating in a few million plus cities, foreign investment then can penetrate to other semi-urban areas. Skill up-gradation and human capital formation in the rural areas will enable the rural youth to take advantage of these new opportunities and thus international trade in services can be made pro-growth as well as employment-intensive. The other way to draw lessons from the findings is to strengthen and enhance the domestic demand so that economic growth and employment both can shoot up even when international trade does not contribute in a big way. This may result in a more equitable distribution of income.

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Appendix

Elasticity of Informal Sector to Formal Sector Employment (1999-2000)

Explanatory Variable	Dep. Var: ln(Employment in Informal Wholesale, Retail Trade, Hotel, etc.)	Dep. Var: ln(Employment in Informal Transport, Storage and Communication)	Dep. Var: ln(Employment in Informal Finance, Business Services, etc.)	Dep. Var: ln(Employment in Informal Community, Social and Personal Services)
ln(Employment in Formal Wholesale, Retail Trade, Hotel, etc.)	1.34 (18.91)*			
ln(Employment in Formal Transport, Storage and Communication)		1.06 (14.24)*		
ln(Employment in Formal Finance, Business Services etc.)			0.93 (9.98)*	
ln(Employment in Formal Community, Social and Personal Services)				1.21 (15.02)*
No. of Observations	32	32	29	32

Note: Figures in parentheses are t-ratios. * represents significance at 5 per cent level.

Elasticity of Informal Sector to Formal Sector Employment (2004-05)

	Dep. Var: ln(Employment in Informal Wholesale, Retail Trade, Hotel etc.)	Dep. Var: ln(Employment in Informal Transport, Storage and Communication)	Dep. Var: ln(Employment in Informal Finance, Business Services etc.)	Dep. Var: ln(Employment in Informal Community, Social and Personal Services)

ln(Employment in Formal Wholesale, Retail Trade, Hotel, etc.)	0.99 (11.16)*			
ln(Employment in Formal Transport, Storage and Communication)		0.95 (18.20)*		
ln(Employment in Formal Finance, Business Services, etc.)			1.10 (19.84)*	
ln(Employment in Formal Community, Social and Personal Services)				1.33 (13.43)*
No. of Observations	31	32	30	32

Note: Figures in parentheses are t-ratios. * represents significance at 5 per cent level.

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