

ANALYTIQUE



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(NDEs) in India: Its Growth and Performance
During the Pre-reform Era

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– *Harsh Anuj*



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From the Editor's Desk

As we go to the press, the domestic economy has made considerable progress on macro front, but challenges remain as usual.

On the positive side, macroeconomic stability has improved considerably, cushioning the economy against possible adverse external shocks. At the same time, the improvement in growth has been uneven, powered only by private consumption and public investment. For sustainable and rapid medium term growth, private sector investment and exports need to revive.

To move India rapidly to its medium-term growth trajectory, supply side reforms and demand management will be essential. Supply side reforms will help restart the private investment cycle, notably through recognition and resolution of the balance sheet problems of firms and banks as well as creating a clean and favorable tax environment through implementation of the goods and services tax (GST) and planned corporate tax reforms.

Let us hope all these issues will be addressed in the upcoming Union Budget 2016-17 more fully.

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Service Rendering Non-Departmental Enterprises (NDEs) in India: Its growth and performance during the pre-reform Era

Santanu Ghosh*

Abstract

The role and performance of public sector in India have widely been discussed and debated with reference to both the central and the state units. In the pre liberalization era – when centralized planning and the control system were the hallmarks of the Indian economic policy – public sector occupied a key position in the economy. India's public sector was and is supposed to suffer from various inefficiencies which ultimately lead to huge losses. The post reform era has seen increasing shift towards market forces and gradual effacement of the public sector.

While the major thrust of discussion with respect to India's public sector centred around, possibly, manufacturing enterprises, service rendering enterprises have not always drawn attention from the researchers. In India, the tertiary sector and the service economy proliferated at a rather faster rate and it is, in this context, an exclusive study on the contribution and performance of the service rendering public sector enterprises assumes significance. There has not been any full length, macroeconomic study on the subject. The present exercise is just a modest

attempt to bridge that gap in the existing literature. In the absence of systematic, time series data, the present exercise is confined to only the non departmental enterprises under the ambit/ownership of the central government. Also, the study period broadly stretches the period from the early 1960s up to the early 1990s – i.e. up to the beginning of the economic reforms. This is the time span when the public sector in India was at its commanding height. The analysis of the central government controlled non departmental enterprises during this period is important because it may help us to assess the sector-specific policy of disinvestment of the service rendering public sector units.

India is the largest democracy in the world; and of the all democracies of the world, India may, possibly, boast of having the largest public sector – in terms of size of output, employment, infrastructure and other key economic indicators. For instance, in spite of economic reforms, the Indian Railways are still the single largest employer of the world.

The founding fathers of Indian Constitution dreamt of making India a democratic, socialist society.

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In a country like India, heralding a socialistic pattern of society cannot be possible without the presence of a solid public sector in the economy. In a mixed economy, the task of public sector, possibly, becomes even more delicate and complicated as it has to work either in tandem or compete with private sector in many areas of economic activity, unlike in a purely socialist / communist economy (e.g. erstwhile Soviet Union) where public sector enjoys absolute monopoly in every sphere of production. The epoch-making Second Five Year Plan Document observed: "The two sectors (i.e. Public and Private) have to function in union and are to be viewed as parts of a single mechanism. The plan as a whole can go through only on the basis of simultaneous and balanced development in the two sectors ...In fact, it is appropriate to think more and more in terms of an inter penetration of the Public and Private Sectors, rather than of two separate sectors" (p. 29, Second Five Year Plan, 1956, Planning Commission, Government of India).

The idea of public sector – i.e., a government owned-cum-controlled sector – as an active economic agent in a nation's economy, perhaps, owes its origin to the erstwhile Soviet experiment of centralized economic planning; ideologically its owes its origin in the writings of the socialist and Marxist thinkers. Public sector, following the Soviet model of development, is supposed to play a pivotal and catalytic role in low-income and less developed economies by ushering in economic transformation; the public sector is

supposed to play the role of "leading sector" in many areas of a nation's economy (e.g. infrastructure and social sectors). Almost all the poor / low income countries – especially those which were once under colonial rule – have accepted the importance of public sector in shaping economic development while formulating their long-term economic policy. And, indeed, India is no exception in this trend.

It may be noted that the entire public sector domain may be categorized into Administrative Departments, Departmental Enterprises and Non-Departmental Enterprises. A major portion of departmental enterprises – one part of government's economic services – renders various services (e.g. railways, post and telegraph etc.). However, it is basically the non-departmental enterprises of the government which occupy an important place in the entire public sector set up in terms of contribution to output, employment generation, diversity in production and so on. The talk about public sector's productivity, profitability, sustainability etc. mostly veers around keeping the non-departmental enterprises in mind.

People are often tempted to judge the performance of public sector not in terms of the broad coverage of the term that has so far been employed, rather in terms of the performance of the public sector (commercial) units, especially because of the fact that huge investment and recurring expenditures are being made by the government to run public sector units. The notion of public sector in a broader perspective has already been explained. A major

portion of departmental enterprises – one part of government’s economic services – renders various services (e.g. railways, post and telegraphs etc.). However, it is basically the non-department enterprises of the government which occupy an important place in the entire public sector set up and in India’s industrial economy in terms of its contribution to output, employment generation, diversity in production, capital formation and so on. Whereas some of the non-departmental enterprises (NDEs) are statutory in nature, the majority of the enterprises are incorporated under the Companies Act of 1956. The former ones are instituted through acts of legislative body (Parliament/Assembly), and, hence, are accountable to the legislative body and are subject to legislative scrutiny. In contrast, the latter type can be formed without any such act, and, therefore, can be established bypassing the legislative body. The non-departmental enterprises – also called public sector undertakings – are engaged in a wide variety of productive activities; while these activities mostly pertain to manufacturing sector, some of the enterprises are specialized in rendering services. The inefficiency of the Indian public sector has been a much discussed subject.

It may be recalled that the NDEs are owned not only by the central government; the state governments too own and control a large number of NDEs. Because of non-availability of detailed data with respect to state undertakings, we shall confine our analysis at central government level.

It may be mentioned that the Bureau of Public Enterprises (BPE) has been publishing (though with lags) Public Enterprises Survey for central government undertakings; before this survey, there used to be Annual Report on the Working of Industrial and Commercial Undertakings of the central government. So, in spite of shortcomings, if any, regarding accuracy, continuity etc. in case of central government undertakings, we can, at least, fall back on some secondary time series data, unlike in case of state government owned enterprises. However, given the overwhelming dominance of central government enterprises, not much insight will probably be lost even if we confine our inquiry within the domain of central government enterprises.

The present exercise, accordingly, makes a modest attempt to highlight some aspects of non-departmental enterprises (NDEs), under the control of the central government, with special reference to the tertiary or service production in the context of India’s public sector. The following sections, accordingly, deal with the role of central government’s NDEs in India’s service economy, with special reference to the period stretching from the early 1960s to the mid 1990s. It needs to be mentioned that the NDEs enjoyed prime importance from the mid-1950s onwards and up to the early or mid 1990s. With the onset of economic liberalization in 1991, there has been increasing tendency towards downsizing the government and, accordingly, disinvestment of the public sector and as well as of denationalization of various sectors hitherto reserved exclusively

for the public sector. Exclusive analysis of the role and performance of the central NDEs has not yet seriously been attempted by the researchers and it is against this background such a study assumes importance.

Performance Indicators of Service Rendering NDEs

I. Relative Growth Performance of Manufacturing and Service Enterprises

In order to have a rough idea about the performance of the central government's NDEs rendering services, we first consider Table – 1 in which the compound annual rates of growth (CARG) of some key variables have been shown. The available figures of different macro aggregates – for instance, volume of sales, net value added (NVA), earnings from exports etc. – in case of NDEs are not quoted in real terms; rather, all the publications – The Public Enterprises Surveys of the Bureau of Public Enterprises (BPE), possibly, being the mother source – give data on current prices only. In order to convert, therefore, nominal values into real terms, we have – as a proxy – deflated the current price data by the public sector GDP deflator (taking 1980-81 as the base year; for convenience, the figures have appropriately been rounded up). It may be argued that since our focus is on the pre-liberalization period – i.e. the pre-1991 era – for the sake of comparison, choice of 1980-81 as the base year, therefore, seems more appropriate rather than taking a more recent year as the base period.

For the sake of comparison, we have presented the corresponding figures for the manufacturing enterprises (owned by the central government) too. The CARG has been estimated both on nominal and real series.

Table – 1: Compound Annual Rate of Growth (in %) of Sales, NVA and Exports

Period	Sales of Manufacturing Enterprises (MEs)		Sales of Service Enterprises (SEs)	
	Nominal	Real	Nominal	Real
1960-61 – 1969-70	35.53	30.08	35.26	29.82
1970-71 – 1979-80	28.27	17.82	20.92	11.07
1980-81 – 1990-91	16.07	6.86	10.96	2.08

Period	Net Value Added of Manufacturing Enterprises (MEs)		Net Value Added of Service Enterprises (SEs)	
	Nominal	Real	Nominal	Real
1973-74 – 1990-91	19.12	8.98	17.23	6.82

Period	Manufacturing Exports		Service Exports	
	Nominal	Real	Nominal	Real
1979-80 – 1990-91	14.23	4.12	16.31	6.03

Period	Exports of MEs		Exports of SEs	
	Nominal	Real	Nominal	Real
1979-80 – 1996-97	22.51	14.97*	11.15	xxx

* means the value has been obtained on the basis of 1990-91 as terminal year

(Note: growth rate calculations in case of exports have been done using the simple compound growth formula)

A casual glance at the figures (Table – 1) helps us to assert that (a) both the manufacturing and service producing NDEs show impressive growth rates at current prices, but not necessarily at constant prices; and (b) the sales of manufacturing enterprises have increased at a faster rate than that of the service rendering NDEs (which implies falling sales share of the service rendering NDEs) and (c) growth rates of sales have declined successively over the three-decade period under consideration – both for the manufacturing and the service rendering enterprises.

II. Contribution of Service Enterprises to Sales and NVA of NDEs

The sales figures, it should, however, be borne in mind do not necessarily reflect the true picture; rather, a better picture of the performance and contribution to economic growth may be obtained, instead, by looking at the net value added (NVA) figures. In Table – 1 we have provided estimates of CARG, in nominal as well as in real terms, for NVA too. We have been able to provide data systematically for the years 1973-74 through 1990-91. The BPE surveys, as already hinted, provide data only in nominal terms. Using the PSGDP deflator (1980-81 being the base year), we have constructed the NVA series in real terms. It turns out that in terms of CARG figures for NVA too, the manufacturing NDEs have fared better than the service rendering NDEs between the years 1973-74 and 1990-91 – irrespective of whether we consider nominal or real values of NVA.

It is important to point out that the relative difference in the growth rates between the two types of NDEs is not very sharp when we take net value added figures instead of figures on sales volumes. Moreover, the NVA – in real and as well as in nominal terms – for service enterprises consistently record a higher CARG than the corresponding figure with respect to sales volumes. In other words, for the service enterprises the net value added has grown faster than the sales volume. It, intuitively, means that the rate of growth of sales volume in the service enterprises has exceeded the rate of growth of intermediate input costs. This is easy to establish algebraically too, which we show in the following steps:

By definition, value added in any industry (say V_i) is the difference between the sales volume (say S_i) and intermediate input cost (say I_i) in that industry. So,

$$V_i \equiv S_i - I_i$$

Now, we do a lit bit of manipulation (and replace the identity sign by the equality sign, without any loss of generality):

$$\text{or, } dV_i = dS_i - dI_i$$

$$\text{or, } \frac{dV_i}{V_i} = \frac{dS_i}{S_i} - \frac{dI_i}{I_i}$$

$$\text{or, } \frac{dV_i}{V_i} = \frac{dS_i}{S_i} \cdot \frac{S_i}{V_i} - \frac{dI_i}{I_i} \cdot \frac{I_i}{V_i}$$

$$\text{or, } g_{vi} = \frac{S_i}{V_i} g_{si} - \frac{I_i}{V_i} g_{li}$$

where g_{vi} , g_{si} and g_{li} represent proportionate (or, percentage, if multiplied by 100) rate of growth in value added, sales volume and intermediate input cost in the i -th industry, respectively. Now, we have an

empirical situation where $g_{vi} > g_{si}$. So, we may write:

$$\frac{S_i}{V_i} g_{si} - \frac{I_i}{V_i} g_{li} > g_{si}$$

$$\text{or, } \left[\left(\frac{S_i}{V_i} \right) - 1 \right] g_{si} > \frac{I_i}{V_i} g_{li}$$

$$\text{or, } \left(\frac{S_i - V_i}{V_i} \right) g_{si} > \frac{I_i}{V_i} g_{li}$$

$$\text{or, } g_{si} > g_{li} \quad (\ominus \quad V_i = S_i - I_i)$$

While Table – 2(a) contains data on nominal sales figures, among others, Table – 2(b) shows information on real values of the NDEs; on the other hand, in Table – 3 we have represented some key ratios pertaining to the performance of the NDEs. The data reveal that since the early 1960s, the sales share of the service rendering NDEs in total sales of the NDEs is showing a declining trend. While in 1960-61, the sales share of service rendering NDEs was slightly more than 50%, in early 1990s, it came down to less than a

Table - 2 (a): Sales, Net Value Added (NVA) and Exports of Service Enterprises (SEs) and NDEs (at Current Prices) [Rs. Cr.]

Year	Sales		Net Value Added		Exports	
	SEs	NDEs	SEs	NDEs	SEs	NDEs
1960-61	110	212	NA	NA	NA	NA
1961-62	138	286	NA	NA	NA	NA
1962-63	155	402	NA	NA	NA	NA
1963-64	164	519	NA	NA	NA	NA
1964-65	209	672	NA	NA	NA	NA
1965-66	366	1011	NA	NA	NA	NA
1966-67	580	1406	NA	NA	NA	NA
1967-68	796	1854	NA	NA	NA	NA
1968-69	1100	2396	NA	NA	NA	NA
1969-70	1389	3010	NA	NA	NA	NA
1970-71	1461	3309	NA	NA	NA	NA
1971-72	1813	3975	NA	NA	NA	NA
1972-73	2575	5324	NA	NA	NA	NA
1973-74	3219	6810	284	1107	179	675
1974-75	4307	10217	359	1603	227	1091
1975-76	4599	11688	436	1941	310	1536
1976-77	5560	14911	706	2419	409	2247
1977-78	6933	18020	837	2536	498	1562
1978-79	6884	19061	907	2972	645	1834
1979-80	8064	23290	1005	3394	774	1913
1980-81	10017	28635	1075	4021	829	2217
1981-82	10723	36482	1315	5707	1032	2746
1982-83	11019	41989	1500	6984	1343	4747
1983-84	12564	47472	1672	7819	1431	5418

Year	Sales		Net Value Added		Exports	
	SEs	NDEs	SEs	NDEs	SEs	NDEs
1984-85	15148	54668	2120	9427	1308	5832
1985-86	17828	62360	2430	10567	1270	3822
1986-87	19387	69088	2893	12508	1438	3942
1987-88	21955	81268	3061	13553	1420	4252
1988-89	21435	93137	3611	16609	1804	4892
1989-90	23553	106069	4267	19697	2180	6366
1990-91	26944	118355	5282	21455	2337	7096

Source: Computed from Public Enterprises Survey (various years)

Table - 2(b): Sales, Net Value Added and Exports of Service Enterprises and NDEs (at 1980-81 Prices) [Rs. Cr.]

Year	Sales		Net Value Added		Exports	
	SEs	NDEs	SEs	NDEs	SEs	NDEs
1960-61	365	703	NA	NA	NA	NA
1961-62	454	941	NA	NA	NA	NA
1962-63	517	1340	NA	NA	NA	NA
1963-64	520	1644	NA	NA	NA	NA
1964-65	640	2058	NA	NA	NA	NA
1965-66	1070	2955	NA	NA	NA	NA
1966-67	1597	3871	NA	NA	NA	NA
1967-68	2057	4791	NA	NA	NA	NA
1968-69	2719	5922	NA	NA	NA	NA
1969-70	3254	7051	NA	NA	NA	NA
1970-71	3316	7510	NA	NA	NA	NA
1971-72	3901	8552	NA	NA	NA	NA
1972-73	5330	11020	NA	NA	NA	NA
1973-74	6223	13165	549	2140	346	NA
1974-75	6605	15668	551	2459	348	NA
1975-76	6470	16443	613	2730	436	NA
1976-77	7353	19718	934	3199	541	NA
1977-78	8788	22842	1061	3215	631	NA
1978-79	8423	23322	1110	3637	789	NA
1979-80	8936	25809	1114	3761	858	2119
1980-81	10017	28635	1075	4021	829	2217
1981-82	8997	30611	1103	4788	868	2304
1982-83	8402	32014	1144	5325	1024	3619
1983-84	8751	32926	1165	5447	1048	3774
1984-85	9813	35414	1373	6106	847	3778
1985-86	10650	37252	1452	6313	759	2283
1986-87	10724	38217	1600	6919	795	2181
1987-88	11295	41809	1575	6973	735	2187
1988-89	10145	44080	1709	7861	854	2315
1989-90	10449	47056	1893	8738	967	2824
1990-91	10790	47397	2115	8592	936	2846

Source: Computed from Public Enterprises Survey (various years)

quarter of total sales. In other words, the service producing NDEs have lost their dominance in the over-all sphere of NDEs.

We now switch over to the question of relative share of service enterprises (in the over all context of central government owned NDEs). Looking at the trend of the key ratios, furnished in the following tables, a couple of observations may be made:

- (1) The share of service enterprises' sales in total NDEs' sales has shown a significant drop between 1960-61 to 1990-91; and
- (2) While the service enterprises have, more or less, been able to maintain a stable share in the vicinity of 24% - 25% since mid-1970s to early 1990s in the total value added of the NDEs, these enterprises have, however, been able to improve their sectoral performance as a whole in terms of net value added (NVA) to sales ratio; between 1973-74 to 1990-91, this ratio has shown a rising trend – rising from 8.82 to 19.57 between these two end points.

Consider now, instead of growth analysis, the question of relative share of service enterprises in the over-all context of NDEs (central government owned NDEs). On the basis of Table – 3(a) and Table – 3(b) we may infer a number of observations: first, the share of service enterprises' sales in total NDEs' sales has shown a significant drop between 1960-61 to 1990-91 (though the behaviour has, occasionally, been erratic); there is, in fact, a declining trend. It signifies the relatively

greater clout that the manufacturing enterprises have been enjoying as NDEs. Second, the manufacturing enterprises, quite ostensibly, account for the greater share of the capital stock; the service enterprises not only account for a smaller share, the available data indicate that its share in total capital stock too has come down from around 40% in the mid-1970s to nearly 30% in the late 1980s. Third, while the service enterprises have, more or less, been able to maintain a stable share in the vicinity of 24% - 25% since mid-1970s to early 1990s in the total value added of the NDEs, these enterprises have, however, been able to improve their sectoral performance as a whole in terms of net value added (NVA) to sales ratio; between 1973-74 to 1990-91, this ratio has shown a rising trend – rising from 8.82 to 19.57 between these two end points. On the contrary, the reverse scenario emerges in case of manufacturing enterprises as we find here a declining ratio. Also, while in case of manufacturing, the ratio has dropped by roughly five percentage points, in case of services, the increment has, approximately, been by eleven percentage points. That the percentage share of NVA in total sales of service enterprises has been rising also corroborates the earlier contention that the rate of growth of NVA has exceeded the rate of growth of sales in this category of NDEs.

Consider, now, Table – 4. The data is, unfortunately, not available for a longer or the entire period under consideration. On the basis of limited data, we can have some

**Table - 3 (a): Nominal Sales and Capital Employed in
Central Government Non-Departmental Enterprises (Rs. Cr.)**

Year	S _m	K _m	S _m /K _m	S _s	K _s	S _s /K _s	S = S _m +S _s	K = K _m +K _s
1960-61	102	NA	NA	110	NA	NA	212	NA
1961-62	148	NA	NA	138	NA	NA	286	NA
1962-63	247	NA	NA	155	NA	NA	402	NA
1963-64	355	NA	NA	164	NA	NA	519	NA
1964-65	463	NA	NA	209	NA	NA	672	NA
1965-66	645	NA	NA	366	NA	NA	1011	NA
1966-67	826	NA	NA	580	NA	NA	1406	NA
1967-68	1058	NA	NA	796	NA	NA	1854	NA
1968-69	1296	NA	NA	1100	NA	NA	2396	3168
1969-70	1621	NA	NA	1389	NA	NA	3010	3281
1970-71	1848	NA	NA	1461	NA	NA	3309	3606
1971-72	2162	NA	NA	1813	NA	NA	3975	4395
1972-73	2749	NA	NA	2575	NA	NA	5324	4757
1973-74	3591	3796	94.60	3219	1475	218.24	6810	5271
1974-75	5910	4718	125.26	4307	1936	222.47	10217	6654
1975-76	7089	5682	124.76	4599	3324	138.36	11688	9006
1976-77	9351	6631	141.02	5560	4426	125.62	14911	11057
1977-78	11087	7202	153.94	6933	4863	142.57	18020	12065
1978-79	12177	8307	146.59	6884	5662	121.58	19061	13969
1979-80	15226	10001	152.24	8064	6181	130.46	23290	16182
1980-81	18618	12101	153.86	10017	6106	164.05	28635	18207
1981-82	25759	14778	174.31	10723	7157	149.83	36482	21935
1982-83	30970	17959	172.45	11019	8567	128.62	41989	26526
1983-84	34908	19908	175.35	12564	9943	126.36	47472	29851
1984-85	39520	24309	162.57	15148	12081	125.39	54668	36390
1985-86	44532	30238	147.27	17828	12727	140.08	62360	42965
1986-87	49701	35898	138.45	19387	15937	121.65	69088	51835
1987-88	59313	40977	144.75	21955	17148	128.03	81268	58125
1988-89	71702	NA	NA	21435	NA	NA	93137	67629
1989-90	82516	NA	NA	23553	NA	NA	106069	84760
1990-91	91411	NA	NA	26944	NA	NA	118355	102084

S_m = Nominal Sales Volume of Manufacturing Enterprises

S_s = Nominal Sales Volume of Service Enterprises

S = Aggregate Nominal Sales Volume of NDEs

K_m = Nominal Capital Stock in Manufacturing Enterprises

K_s = Nominal Capital Stock in Service Enterprises

K = Aggregate Nominal Capital Stock in NDEs

Source: Public Enterprises Survey (various years) and CMIE (various years)

**Table - 3 (b): Some Important Share Indicators of NDEs
(Based on Current Prices)**

Year	S_s / S	K_s / K	NVA_s / NVA	NVA_s / S_s	NVA_m / S_m
1960-61	51.89	NA	NA	NA	NA
1961-62	48.25	NA	NA	NA	NA
1962-63	38.56	NA	NA	NA	NA
1963-64	31.6	NA	NA	NA	NA
1964-65	31.1	NA	NA	NA	NA
1965-66	36.2	NA	NA	NA	NA
1966-67	41.25	NA	NA	NA	NA
1967-68	42.93	NA	NA	NA	NA
1968-69	45.91	NA	NA	NA	NA
1969-70	46.15	NA	NA	NA	NA
1970-71	44.15	NA	NA	NA	NA
1971-72	45.61	NA	NA	NA	NA
1972-73	48.37	NA	NA	NA	NA
1973-74	47.27	NA	25.65	8.82	22.92
1974-75	42.16	NA	22.4	8.34	21.05
1975-76	39.35	36.91	22.46	9.48	21.23
1976-77	37.29	40.03	29.19	12.7	18.32
1977-78	38.47	40.31	33.00	12.07	15.32
1978-79	36.12	40.53	30.52	13.18	16.96
1979-80	34.62	38.2	29.61	12.46	15.69
1980-81	34.98	33.54	26.73	10.73	15.82
1981-82	29.39	32.63	23.04	12.26	17.05
1982-83	26.24	32.30	21.48	13.61	17.71
1983-84	26.58	33.31	21.38	13.31	17.71
1984-85	27.71	33.2	22.49	14.00	18.49
1985-86	28.59	29.62	23.00	13.63	18.27
1986-87	28.06	30.75	23.13	14.92	19.35
1987-88	27.02	29.50	22.59	13.94	17.69
1988-89	23.01	NA	21.74	16.85	18.13
1989-90	22.21	NA	21.66	18.12	18.7
1990-91	22.77	NA	24.62	19.57	17.69

NVA = Net Value Added in NDEs (Rs.Cr.)

NVA_m = Net Value Added in Manufacturing Enterprises (Rs.Cr.)

NVA_s = Net Value Added in Service Enterprises (Rs.Cr.)

Source: Computed from Public Enterprises Survey (various years) and CMIE (various years)

inference regarding how capital intensity has been changing over time. It turns out that while (a) the capital intensity – computed on the basis of sales figures (i.e. Sales to Capital Employed) – has been showing a falling trend in case of services, the trend is reverse in case of manufacturing, and (b) the capital intensity, however, when calculated on the basis of NVA figures, demonstrates diametrically opposite behaviour. In other words, the service-rendering NDEs have become increasingly capital intensive, unlike the manufacturing NDEs; whereas the NVA to Capital Employed ratio has hovered around a figure of 25% in manufacturing, the corresponding figure is, though, lower in services, however, exhibits a modestly rising trend during the phase spanning from the mid-1970s.

The conclusions borne out by Table – 3(a) and Table – 3(b) are, actually, complementary; to see this, let us consider the following algebraic exercise.

Let $\alpha = S_i / K_i$ = ratio of sales to capital employed in sector i and $\beta = V_i / K_i$ = ratio of NVA to capital employed in sector i. Then we may write:

$\alpha^* = S_i^* - K_i^*$ and $\beta^* = V_i^* - K_i^*$, where * over a variable indicates its proportionate (or percentage, when multiplied by 100) change. We notice, from Table – 4, that over time α_s has a falling trend and β may have a rising trend. This may be construed as $\alpha^* < 0$ and $\beta^* > 0$ (i.e. the first variable has a negative growth rate, and the second one has a positive growth rate). Hence, we may write:

$$\beta^* > \alpha^*$$

$$\text{or, } V_i^* - K_i^* > S_i^* - K_i^*$$

$$\text{or, } V_i^* > S_i^*$$

Now recall that $V_i^* = g_{vi}$ and $S_i^* = g_{si}$

So, we actually obtain the earlier result, viz. $g_{vi} > g_{si}$

Table - 4: Capital Intensity in NDEs

Year	NNVA _m /K _m (β_m)	NNVA _s /K _s (β_s)	S _m /K _m (α_m)	S _s /K _s (α_s)
1973-74	21.68	19.25	94.60	218.24
1974-75	26.37	18.54	125.26	222.47
1975-76	26.49	13.12	124.76	138.36
1976-77	25.83	15.95	141.02	125.62
1977-78	23.59	17.21	153.94	142.57
1978-79	24.86	16.02	146.59	121.58
1979-80	23.89	16.26	152.24	130.46
1980-81	24.35	17.61	153.86	164.05
1981-82	29.72	18.37	174.31	149.83
1982-83	30.54	17.51	172.45	128.62
1983-84	30.88	16.82	175.35	126.36
1984-85	30.06	17.55	162.57	125.39
1985-86	26.91	19.09	147.27	140.08
1986-87	26.78	18.15	138.45	121.65
1987-88	25.60	17.85	144.75	128.03

Computed from Public Enterprises Survey (various years)

Note: NNVA stands for nominal NVA

III. Export of Services and Foreign Exchange Earnings by NDEs

One of the objectives behind the policy of promoting public sector enterprises is its contribution in foreign exchange earnings. As is well known, India has basically been a chronic balance of payments (BOP) deficit country since the Second Plan. The public sector was expected to ameliorate, partly, the adverse BOP position through import substituting industrialization, as well as, taking an active role in export promotion. Naturally, it will be useful to take a brief look into the role or contribution of India's public sector in export front, with special reference to service rendering NDEs public sector.

On the basis, once again, of limited available data, we have attempted to draw some lessons so far as foreign exchange earnings (in rupee terms) by the public sector are concerned. It should be noted that the official data (BPE Surveys) provide information using the break-up (a) export of canalized goods, (b) export of non-canalized goods and (c) export of services. As it turns out that export of services should not be equated with exports by enterprises rendering services should not be equated with exports by enterprises rendering services. The reason is obvious: some of the service rendering enterprises earn foreign exchange by handling, say, canalized goods (i.e. MMTC,

STC). In the true sense, though, income earned via handling of goods produced by others should be classified as service (as in the case of wholesalers and retailers in distributive trade), the official data do not exclusively classify or distinguish export income figures on that line. Accordingly, one needs to be careful in interpreting the export income figures. In other words, here the sources of export incomes should not be linked in the traditional manner or the division that we have so far been adhering to. Rather, we now have to differentiate between export of services and export of goods by public sector enterprises.

Having kept the above destination in mind, we note from Table – 1, that service exports by public sector have grown at a slower rate during the entire period 1973-74 – 1990-91 as well as in the decade preceding the launching of reforms; it was only during the 1970s (to be precise, from 1973-74 onwards), that the services exports recorded a significantly higher annual growth rate than the exports of goods. However, though the growth in service exports had lagged behind that in goods during the 1980s and for the whole period under consideration, the difference between growth rates in services and goods in the public sector had not been much pronounced, unlike, in case of sales volume.

In Table – 5(b) we have presented some key ratios with respect to exports. An analysis of the data reveals the following: (a) service

exports as proportion of total exports have risen between the years 1973-74 and 1990-91, though the behaviour has not been monotonic; however, (b) export earnings from services as proportion of total sales of NDEs has been, on the whole, falling and this income as percentage of total sales volume of NDEs is virtually negligible while (c) service exports as proportion of sales incomes of service rendering NDEs have shown a rising tendency (through with ups and downs), and (d) in case of exports of goods (canalized and non-canalized) the proportion (in respect of income of manufacturing NDEs) has exhibited a downward trend.

Table - 5(a): Some Share Indicators of Service Enterprises and Service Exports of Non Departmental Enterprises (at Current Prices)

Year	% Share of SEs in Total Sales	NVA of SEs as % of		Service Exports as % of		
		Total NVA	Total Sales of SEs	Total Exports	Total Sales	Sales of SEs
1973-74	47.27	25.65	8.82	26.52	2.63	5.56
1974-75	42.16	22.4	8.34	20.81	2.1	5.27
1975-76	39.35	22.46	9.48	20.18	2.65	6.74
1976-77	37.29	29.19	12.7	18.2	2.74	7.36
1977-78	38.47	33.00	12.07	31.88	2.76	7.18
1978-79	36.12	30.52	13.18	35.17	3.38	9.37
1979-80	34.62	29.61	12.46	40.46	3.32	9.6
1980-81	34.98	26.73	10.73	37.39	2.9	8.28
1981-82	29.39	23.04	12.26	37.52	2.83	9.64
1982-83	26.24	21.48	13.61	28.29	3.2	12.19
1983-84	26.58	21.38	13.31	27.21	3.18	11.98
1984-85	27.71	22.49	14.00	22.43	2.39	8.63
1985-86	28.59	23.00	13.63	33.23	2.04	7.12
1986-87	28.06	23.13	14.92	36.51	2.08	7.42
1987-88	27.02	22.59	13.94	34.22	1.76	6.51
1988-89	23.01	21.74	16.85	36.88	1.94	8.42
1989-90	22.21	21.66	18.12	34.24	2.06	9.26
1990-91	22.77	24.62	19.57	32.93	1.97	8.67

Source: Computed from Public Enterprises Survey (various years)

In Table – 5(c) and Table – 5(d) we have presented, on the other hand, the figures of exports as proportion of NVA (in real terms) for the manufacturing and the service rendering enterprises, respectively. It is noticed that when export earnings are shown in

Table - 5(b): Nominal Exports of NDEs (Rs.Cr.) and Export Shares of Services

Year	ExpCG	ExpNCG	ExpSrv	Total	A	B	C	D
1973-74	404	92	179	675	26.52	2.63	5.56	13.81
1974-75	725	139	227	1091	20.81	2.1	5.27	14.62
1975-76	1005	221	310	1536	20.18	2.65	6.74	17.29
1976-77	1416	422	409	2247	18.2	2.74	7.36	19.66
1977-78	658	406	498	1562	31.88	2.76	7.18	9.6
1978-79	723	466	645	1834	35.17	3.38	9.37	9.76
1979-80	754	385	774	1913	40.46	3.32	9.6	7.48
1980-81	661	727	829	2217	37.39	2.9	8.28	7.46
1981-82	612	1102	1032	2746	37.52	2.83	9.64	6.69
1982-83	651	2753	1343	4747	28.29	3.2	12.19	10.99
1983-84	710	3277	1431	5418	27.21	3.18	11.98	11.6
1984-85	2568	1956	1308	5832	22.43	2.39	8.63	11.45
1985-86	1545	1007	1270	3822	33.23	2.04	7.12	5.73
1986-87	1219	1285	1438	3942	36.51	2.08	7.42	5.03
1987-88	1407	1425	1420	4252	34.22	1.76	6.51	4.63
1988-89	1336	1752	1804	4892	36.88	1.94	8.42	4.31
1989-90	1813	2373	2180	6366	34.24	2.06	9.26	5.07
1990-91	2170	2589	2337	7096	32.93	1.97	8.67	5.77

ExpCG = Export of Canalized Goods

ExpNCG = Export of Non-Canalized Goods

ExpSrv = Export of Services

Total = Total Exports

A = Export of Services (Rs.Cr.) as % of Total Export Earning in NDEs.

B = Export of Services (Rs.Cr.) as % of Total Sales (Rs.Cr.) of NDEs.

C = Export of Services (Rs.Cr.) as % of Total Sales of Service Enterprises.

D = Export of Canalized and Non-Canalized Goods (Rs. Cr.) as % of Total Sales of Manufacturing Enterprises

Note: Till 1983-84, exports of POL by the IOC were included under Non-canalized items; for subsequent years it was included in the Canalized Goods in the BPE Surveys

Source: Computed from Public Enterprises Survey (various issues) and CMIE Publications (various issues)

terms of percentage of corresponding NVA figures, then the values are quite impressive. This is quite natural given the fact that NVA is always less than

sales volume, which is a gross concept. It is found that service export earnings as proportion of NVA in service enterprises have normally been higher than the case of export earnings from goods as proportion of NVA in manufacturing enterprises. There are considerable fluctuations in percentage values in both the series, and, moreover, within our study period, a declining trend is discernible in each case. An interesting point to note is that in one particular year,

Table – 5(c): Manufacturing Exports of NDEs (Rs.Cr.)

Year	Manufacturing Exports (Nominal)	Manufacturing Exports (Real)	Share of Real Manufacturing Exports in RNVA _m
1973-74	496	959	60.28
1974-75	864	1325	69.44
1975-76	1226	1725	57.91
1976-77	1838	2431	107.33
1977-78	1064	1349	62.63
1978-79	1189	1455	57.58
1979-80	1139	1262	47.68
1980-81	1388	1388	47.11
1981-82	1722	1445	39.21
1982-83	3404	2595	62.07
1983-84	4027	2805	65.51
1984-85	4524	2931	61.93
1985-86	2552	1524	31.35
1986-87	2501	1383	25.65
1987-88	3247	1670	30.94
1988-89	3088	1461	23.75
1989-90	4186	1857	27.13
1990-91	4760	1906	29.43

Computed from Public Enterprises Survey (various years) [Real Series Base: 1980-81]

RNVA_m = Real Net Value Added in Manufacturing

1976-77, export incomes from goods as proportion of NVA in manufacturing exceeded 100%, which seems apparently, a rather peculiar scenario. Let us briefly explore the matter in simple algebraic form: for any sector, say i-th sector, as we have already pointed out:

$$Vi \equiv Si - Ii$$

Where, V_i, S_i and I_i are value-added, sales volume and intermediate input costs in sector i, respectively. Now, when a sector's output is sold both in home and in abroad (i.e. exported partly), then we may decompose the above figures into

their domestic and export components (denoted by suffixes 'd' and 'x' respectively). Accordingly, we may write:

$S = S_{di} + S_{xi}$, $V = V_{di} + V_{xi}$ and $I = I_{di} + I_{xi}$ so that $V_i = S_i - I_i$ may be rewritten as:

$$V_{di} + V_{xi} = (S_{di} + S_{xi}) - (I_{di} + I_{xi})$$

$$\text{or, } S_{xi} = (V_{di} + V_{xi}) + (I_{di} + I_{xi}) - S_{di}$$

$$\text{or, } S_{xi} = (V_{xi} + I_{xi}) + (V_{di} + I_{di}) - S_{di}$$

Now, since by definition $V_i = S_i - I_i$ or $V_i + I_i = S_i$, therefore, $(V_{di} + I_{di}) = S_{di}$. Hence,

$$S_{xi} = V_{xi} + I_{xi}$$

This, actually, establishes the result that sales from exports can also be decomposed into two parts : value added (a net concept) and intermediate cost. So,

$$S_{xi} / V_i = (V_{xi} / V_i) + (I_{xi} / V_i)$$

$$\text{or, } S_{xi} / V_i = [(V_{di} + V_{xi}) - V_{di}] / V_i + I_{xi} / V_i$$

$$\text{or, } S_{xi} / V_i = [(V_i - V_{di}) / V_i] + I_{xi} / V_i$$

$$\text{or, } S_{xi} / V_i = 1 + [(I_{xi} - V_{di}) / V_i]$$

From the above expression it should now be clear that depending on the values of I_{xi} and V_{di} , it is possible to have $(S_{xi} / V_i) > = < 1$. Moreover, I_{xi} and V_{di} being not related or independent, it is quite possible to have a scenario where we have $V_{di} < I_{xi}$ so that the second term on the right hand side is positive and, therefore, $(S_{xi} / V_i) > 1$, i.e. exports earnings as proportion of value added of the sector exceeds 100%. We may also illustrate this with simple numerical examples. Take $I_{xi} = 10$, $V_{di} = 8$, $V_{xi} = 6$, $I_{di} = 4$; then $S_{di} = 8 + 4 = 12$ and $S_{xi} = 6 + 10 = 16$, so, $S_{xi} / V_i = 16 / (8 + 6) = 16 / 14 > 1$. If instead, we put, say, $I_{xi} = 5$, then $S_{xi} / V_i = 11 / 14 < 1$.

However, one should bear in mind that in gross terms the export earnings do not necessarily throw true light on the export front. What one needs is the net export earning figures which may very well turn out to be negative. Unfortunately, data on net exports over a reasonable period is not easily available. The available data during the 1980s show that net exports as a whole have systematically not only been negative, but, have fast become heavy, at least, in absolute terms.

Table – 5(d): Real Exports of NDEs [Rs.Cr.]

Year	REXSR	RSx	TRSx	RNVXs
1973-74	346	5.56	2.63	63.02
1974-75	348	5.27	2.22	63.16
1975-76	436	6.74	2.65	71.13
1976-77	541	7.36	2.74	57.92

Year	REXSR	RS _x	TRS _x	RNVX _s
1977-78	631	7.18	2.76	59.47
1978-79	789	9.37	3.38	71.08
1979-80	858	9.6	3.32	77.02
1980-81	829	8.28	2.9	77.12
1981-82	868	9.65	2.84	78.69
1982-83	1024	12.19	3.2	89.51
1983-84	1048	11.98	3.18	89.96
1984-85	847	8.63	2.39	61.69
1985-86	759	7.13	2.04	52.27
1986-87	795	7.41	2.08	49.69
1987-88	735	6.51	1.76	46.67
1988-89	854	8.42	1.94	49.97
1989-90	967	9.25	2.05	51.08
1990-91	936	8.67	1.97	44.26

(Base: 1980-81)

REXSR = Real Export of Services

RS_x = Share of Real Export of Services in Total Real Sales of Service Enterprises (RSSE)

TRS_x = Share of Real Export of Services in Total Real Sales (TRS)

RNVX_s = Share of Real Export of Services in Real NVA of Services

Source: Computed from Public Enterprises Survey (various years)

From Table – 1, it is easy to verify that between 1979-80 and 1990-91, export earnings by manufacturing enterprises had grown much faster than service enterprises. While exports by manufacturing companies registered a rather impressive annual growth rate (nearly 15%) in real terms, the over-all real annual growth rate had been quite low (roughly 3%). This highlights the fact that the over-all growth rate had significantly been dampened by poor growth performance of the service enterprises. Two more observations should be made in this case. First, the export shares of service companies show a falling tendency from a whopping level of 90%, in the late 1980s, to a figure in the vicinity of 6% in the early 1990s. Second, there is considerable degree of instability in the export figures when one looks into the real series. More importantly, notwithstanding the fact that the share of manufacturing units in total exports has not been dominant, we still find a close relation between movements in exports by manufacturing companies and total exports by NDEs – whenever, the former is showing upswing/downswing, the latter is also following the similar pattern.

Table – 5(e): Indicators of Export Performance by the NDEs

Year	(X_m/V_m) 100	(X_s/V_s) 100	(X_m/S_m) 100	(X_s/S_s) 100	V_m/V_s	S_m/S_s	(X_s/S) 100	RSS_x
1979-80	7.91	171.54	1.24	21.38	2.38	1.89	7.4	90.14
1980-81	12.22	172.74	1.93	18.54	2.74	1.86	6.49	83.76
1981-82	16.21	154.68	2.76	18.97	3.34	2.4	5.58	74.09
1982-83	42.36	161.6	7.5	22	3.66	2.81	5.77	51.06
1983-84	44.95	158.79	7.96	21.13	3.68	2.76	5.62	48.99
1984-85	42.84	127.41	7.92	17.83	3.45	2.61	4.94	46.32
1985-86	15.58	105.1	2.85	14.33	3.35	2.5	4.1	66.84
1986-87	10.39	101.73	2.01	15.18	3.32	2.56	4.26	74.64
1987-88	11.52	99.41	2.04	13.86	3.43	2.7	3.74	71.56
1988-89	11.22	95.1	2.03	16.02	3.6	3.35	3.69	70.19
1989-90	12.99	102.23	2.43	18.52	3.62	3.5	4.11	68.52
1990-91	14.98	88.47	2.65	17.34	3.06	3.39	3.95	65.92

X_m = Nominal Export Income by MEs

X_s = Nominal Export Income by SEs

V_m = Nominal Net Value Added by the MEs

V_s = Nominal Net Value Added by the SEs

S = Total Nominal Sales by the NDEs = $S_m + S_s$

RSS_x = Real Share of Service Exports in Total Exports

Source: Computed from Public Enterprises Survey (various years)

On the basis of information furnished in Table – 5(d), Table – 5(e) and Table – 5(f), containing time series data on some key indicators, among others, we find that share of export income from services in total exports is considerably lower than the export share of service rendering enterprises during the same period. It means, the service enterprises have also been handling a sizeable and larger volume of goods in their external trade transactions, compared to manufacturing enterprises.

Table – 5(f): Export Income by Manufacturing and Service Enterprises (Rs.Cr.)

Year	MEs (Nominal)	SEs (Nominal)	Total (Nominal)	MEs (Real)	SEs (Real)	Total (Real)	Share of SEs (Real)
1979-80	189	1724	1913	209	1910	2119	90.14
1980-81	360	1857	2217	360	1857	2217	83.76
1981-82	712	2034	2746	597	1707	2304	74.09
1982-83	2323	2424	4747	1771	1848	3619	51.06
1983-84	2762	2656	5418	1925	1849	3774	48.99
1984-85	3130	2702	5832	2028	1750	3778	46.32

Year	MEs (Nominal)	SEs (Nominal)	Total (Nominal)	MEs (Real)	SEs (Real)	Total (Real)	Share of SEs (Real)
1985-86	1269	2554	3823	757	1526	2283	66.84
1986-87	999	2943	3942	553	1628	2181	74.64
1987-88	1209	3043	4252	622	1565	2187	71.56
1988-89	1458	3434	4892	690	1625	2315	70.19
1989-90	2004	4362	6366	889	1935	2824	68.52
1990-91	2423	4673	7096	970	1876	2846	65.92

(Real Series Base: 1980-81)

Source: Computed from Public Enterprises Survey (various years)

Also, while between 1979-80 and 1990-91, the export share by service enterprises has fallen, in absolute terms, by a rather large percentage-point, the extent of drop – when only the share of service exports in total exports is considered – is much less in absolute terms (i.e. in terms of loss of percentage points). Let us attempt to formalize and explore it in terms of simple algebraic expressions. We define the following notations:

X_s = Total export earnings by the service enterprises;

X_s^s = Total export earnings from services by the service enterprises;

X = Total export earnings by the NDEs.

We use '0' and '1' to identify to points of time. Accordingly, for example, X_{s0} , X_{s1} stand for export earnings by the service enterprises at time '0' and at time '1', respectively. We may note that $X_s > X_s^s$ since X_s^s is a portion or subset of X_s . Now, as discussed in the earlier paragraphs, X_s / X and X_s^s / X both have shown a tendency to fall, the extent of fall, in terms of percentage points, being larger in case of the former. So, we may write in general:

$$\begin{aligned} (X_{s0} / X_0) - (X_{s1} / X_1) &> (X_{s0}^s / X_0) - (X_{s1}^s / X_1) \\ \text{or, } (X_{s0} / X_0) - (X_{s0}^s / X_0) &> (X_{s1} / X_1) - (X_{s1}^s / X_1) \\ \text{or, } (X_{s0} - X_{s0}^s) / X_0 &> (X_{s1} - X_{s1}^s) / X_1 \end{aligned}$$

But, $X_{s1} - X_{s1}^s = X_{s1}^c =$ exports of commodities handled by the service enterprises. Hence we may write:

$$\begin{aligned} (X_{s0}^c / X_0) &> X_{s1}^c / X_1 \\ \text{or, } (X_{s0}^c / X_{s1}^c) &> (X_0 / X_1) \\ \text{or, } X_{s1}^c / X_{s0}^c &< (X_1 / X_0) \\ \text{or, } (X_{s1}^c - X_{s0}^c) / X_{s0}^c &< (X_1 - X_0) / X_0 \\ \text{or, } g_s^c &< g_x \end{aligned}$$

where, g_s^c = growth rate of exports of commodities handled by the service enterprises and g_x = growth rate of exports by the NDEs.

A few more propositions from the trend indicated by different ratio indicators may also be drawn. We now use the following symbols for convenience:

X_m = Total export income by manufacturing enterprises;

V_m = Net value-added in manufacturing enterprises.

V_s = Net value-added in service enterprises.

V = Total value-added in NDEs.

A look at Table – 5(e) reveals the following tendencies:

$\theta_1 = (X_m / V_m) \uparrow$, $\theta_2 = (X_s / V_s) \downarrow$, $\theta_3 = (X_s / V) \downarrow$ and $\theta_4 = (V_m / V_s) \uparrow$, where a downward arrow symbol indicates that the ratio under consideration is falling, and an upward arrow sign means that the ratio under consideration is rising [θ_i s being the ratios, $i = 1, 2, 3, 4$]. Since θ_2 and θ_3 are falling, we can write:

$$X_s^* < V_s^* \text{ and } X_s^* < V^*$$

and, as θ_1 and θ_4 are rising, we can write:

$$X_m^* > V_m^* \text{ and } V_m^* > V_s^*$$

where * over a variable, as before, represents its proportionate / percentage change, i.e. the growth rate. Also because $V = V_m + V_s$ and $V_m > V_s$, therefore V^* – the over-all growth rate in net value added – must lie between V_m^* and V_s^* . In other words, $V_m^* > V^* > V_s^*$. Now, we are in a position to combine these results into the following inequality relation:

$$X_m^* > V_m^* > V^* > V_s^* > V_s^*$$

We can, thus, assert that during the period 1979-80 – 1990-91, it is the export earnings by the service enterprises, which lagged behind all other important relevant macro aggregates.

IV. Output Composition and its Shift within the Service Enterprises

Let us now turn to the output or production side: its composition and changes across different sub sectors within the service rendering NDEs. We have already explained the coverage of service rendering enterprises under public sector at the central level. Of the service enterprises, two types of activities have been on the forefront – in terms of sales and capital employed, at least – right from the beginning; these are enterprises engaged in (a) trading and marketing (TMKTG, in short) and (b) transportation services (TRANSP, in short). From the mid-1980s, two more activities began to assume increasingly important place – notably, companies in the spheres of telecommunication and financial

Table – 6: Sales Shares of Sub-Groups within SEs

Year	TMKTG	TRPN	TELCOM	FINANCE	Combined Share
1979-80	79.27	13.55	xxx	0.73	93.55
1980-81	78.38	14.38	xxx	0.81	94.47
1981-82	78.04	14.33	xxx	0.85	93.22
1982-83	75.55	15.11	xxx	0.96	91.62
1983-84	72.4	17.5	xxx	1.16	91.07
1984-85	73.76	16.28	xxx	1.15	91.19
1985-86	78.08	13.28	xxx	1.09	92.45
1986-87	77.47	14.2	xxx	1.21	92.88
1987-88	73.76	14.69	0.59	1.34	90.38
1988-89	73.8	13.67	0.46	1.87	89.8
1989-90	69.24	15.34	6.02	3.12	93.72
1990-91	64.8	17.14	6.07	4.1	92.11
1991-92	66.04	16.64	6.26	5.11	94.05
1992-93	65.9	16.26	6.32	6.02	94.5
1993-94	55.4	19.28	9.17	7.41	91.26
1994-95	56.88	18.68	9.03	6.97	91.56
1995-96	58.29	18.2	9.07	6.07	91.63
1996-97	56.6	18.65	9.81	6.93	91.99

TMKTG = Trading and Marketing; TRPN = Transportation; TELCOM = Telecom

Source: Computed from Public Enterprises Survey (various years)

services. The rapid strides in the telecommunication sector and also development of financial markets in the country since the late 1980s are reflected in these developments. In Table – 6, sales shares of NDEs (in total service sector sales) in the aforesaid spheres have been provided. It is absolutely clear that these four activities (and three before 1986-87) were dominant activities, in the sense of being the major contributors to total turnover of service enterprises, almost till the end of the 1990s. The other sub-sectors' contributions have, therefore, relatively been meager. Moreover, till the mid-1980s, it was the trading and marketing business which accounted for a whopping share in the total sales. Afterwards, the shares

of telecommunication and financial services started showing a rising tendency. In case of transportation services also, though we notice an upward trend in its share, in this case, the rise is, however, rather gradual. It seems, the fall in the share of trading and marketing (though it is by far the single largest revenue earner in the entire service group) has mostly been accounted by the rising shares of telecommunication and finance.

V. Profit Scenario of the Service Enterprises

There has been much debate and discussion concerning the profitability – or, rather loss – of the public sector in India. It is, therefore, imperative to take a look into this aspect too. This is also important because of the fact that the entire issue is delicately linked to the question of disinvestment and denationalization of the public sector units. In fact, when a public sector unit is periodically incurring heavy losses and the sustenance of this enterprise requires budgetary allocations and/or subsidies – the resources that could have been diverted to more meaningful purposes and where the social return would have been significantly higher (say, primary education or primary health) – then the rationale of running that very enterprise under direct and dominant government ownership is bound to crop up. It is an undeniable fact that during the heyday of centralized planning in India, central and state governments undertook

many economic activities which could have, possibly, been avoided had the policy makers followed sound economic logic; for instance, it is difficult to justify public sector's presence in an activity like hotel, especially when governments face severe resource crunch and when the enterprise is incurring losses.

It is against this backdrop, we intend, therefore, to take a look at the profit scenario. Table – 7(a) and Table – 7(b) capture some aspects of profitability profile of service enterprises vis-a-vis the central non-departmental enterprises as a whole. Barring the first two years of the period under study, for which data have been furnished, the NDEs as a whole had reaped net profit in all the years. The common allegation and perception that government concerns are running at huge losses cannot be justified, if one were to take into account the aggregate net profit of the NDEs. True, some sectors and a number of units may be running at losses; but, in spite of that, the government companies as a group had been able to contribute net positive sum to the coffers (though there might be scope of greater net profit had it been operated by the private sector). And it is in this context, the policy of disinvestment in public enterprises needs a careful examination, which is, however, beyond the purview of this study. The points that we should here raise are: first, disinvestment decision in core enterprises needs to be carefully

explored before taking a final plunge and second, a detailed and transparent picture should be presented regarding profit and loss accounts for a number of years in case of the enterprises where the government intends to off load, partially or fully, its stake; indeed, one needs to judge that to what extent the concerned enterprises have become liability to the exchequer.

**Table – 7(a): Net Profit/Loss in Different Sub-Groups of NDEs
(in Rs.Cr. and in Current Prices)**

Year	TMKTG	TRPN	TELCOM	FINANCE	TOURISM	SRVTOT	NDETOT
1979-80	19.09	-14.88	xxx	12.85	2.98	5.19	-74
1980-81	30.92	-6.47	xxx	17.06	1.46	-19.77	-182
1981-82	49.57	-6.76	xxx	22.15	2.38	64.59	445
1982-83	36.69	-50.01	xxx	29.93	2.37	23.84	618
1983-84	27.49	-51.73	xxx	19.59	-2.7	-3.91	240
1984-85	47.24	-35.17	xxx	18.04	-1.95	64.78	929
1985-86	53.31	-34.39	xxx	31.65	1.02	74.87	1172
1986-87	40.08	-55.55	198.95	38.29	-6.79	213.49	1771
1987-88	78.02	-44.04	220.19	46.39	1.05	280.18	2030
1988-89	92.52	92.41	316.4	65.98	-0.55	438.66	2994
1989-90	131.89	77.73	264.3	128.15	0.16	389.94	3782
1990-91	190.63	-54.7	181.65	149.3	-12.12	304.5	2272
1991-92	183.37	-7518	275.37	347.73	-9.78	600.78	2355
1992-93	153.49	123.51	320.74	376.53	-4.4	1101.65	3271
1993-94	122.94	-31.57	526.26	545.15	3.94	1175.03	4545
1994-95	142.78	-48.05	879.65	492.91	31.67	1583.29	7217
1995-96	125.48	-183.03	1139.15	555.77	81.29	1974.51	8574
1996-97	146.97	230.17	1437.53	493.61	84.38	2621.41	10258

SRVTOT = Service Total; NDETOT = NDE Total

Source: Computed from Public Enterprises Survey various years

In Table – 7(a), we have shown net profits earned by four major sub-groups in the service enterprises category, as well as, net profits from public sector tourism business. The penultimate column stands for aggregate net profit of the service-rendering enterprises as a whole. It should be borne in mind that sum of the net profits of these five sub-groups would not only fail to match the corresponding figure in the last column, but also the sum may even exceed the total net profit

in the last column simply because some of the sub-groups – which we haven't shown – may be running at a net loss. Keeping this in mind, we note that the trading and marketing, finance and telecommunication are the sub sectors that have always earned net profit during the period under our purview. On the other hand, the transportation services – though occupy an important place in terms of gross turnover in relation to total turnover of service enterprises – have always been running at loss, except only in three years : 1980-81, 1988-89 and 1996-97.

Of the three major net profit earning sub-sectors, the financial services have recorded a rather impressive growth, in spite of the fact that its terminal year net profit is lower than the previous year. However, it is, perhaps, the telecommunication activities which have stolen the limelight wherein a relatively short span (a decade). The telecom services have, indeed, progressed a lot since the mid-1980s and, thanks to marvelous studies in the field of science and technology, we really have not only an IT revolution, but also a revolution in telecommunication. The telecom revolution has made it possible for us to enjoy new and a variety of products (i.e. electronic mail), as well products at much cheaper rates than in the early 1980s and earlier.

In Table 7(b), percentage shares relating to sub-sectoral profits have been presented – the shares being calculated on the basis of Table – 7(a) [we have ignored the years where net losses occurred]. The second column indicates that public sector service enterprises' profit share in NDEs' net profit had been rising since the early 1980s; in fact, from the early 1990s, the share seems to have jumped to a higher plane of 20% and above. The other points that follow are:

(a) the trading and marketing services, in spite of being the largest and dominant in terms of volume of sales, slipped down the ladder in terms of contribution to net profit. Thus, while in 1981-82, say, its share in total NDEs' net profit was 11.12% (the largest among the service group) and its net profit was 76.75% of the net profit of the service group, by 1996-97 this figures came down to a meager 1.43% and to 5.60%, respectively; on the other hand, (b) it is the telecommunication services which, however, fared much more

**Table – 7(b): Profit Shares of Different Sub-Groups of Services in NDEs
(Based on Current Prices)**

Year	A	B	B ₁	C	C ₁	D	D ₁
1981-82	14.48	11.12	76.75	4.97	34.29	xxx	xxx
1982-83	3.86	5.94	153.9	4.84	125.55	xxx	xxx
1983-84	xxx	11.45	xxx	8.16	xxx	xxx	xxx
1984-85	6.98	5.09	72.92	1.94	27.85	xxx	xxx
1985-86	6.39	4.55	71.2	2.70	42.27	xxx	xxx
1986-87	12.05	2.26	18.77	2.16	17.94	11.23	93.19
1987-88	13.80	3.84	27.85	2.28	16.56	10.84	78.59

Year	A	B	B ₁	C	C ₁	D	D ₁
1988-89	14.65	3.09	21.09	2.2	15.04	10.57	72.13
1989-90	10.31	3.49	33.82	3.39	32.86	6.99	67.78
1990-91	13.4	8.39	62.6	6.57	49.03	8.00	59.66
1991-92	25.51	7.79	30.52	14.77	57.88	11.69	45.84
1992-93	33.68	4.69	13.93	11.51	34.18	9.81	29.11
1993-94	25.85	2.70	10.46	11.99	46.39	11.45	44.28
1994-95	21.94	1.98	9.02	6.83	31.13	12.19	55.56
1995-96	20.62	1.31	6.35	5.80	28.15	11.90	57.69
1996-97	25.55	1.43	5.60	4.81	18.83	14.01	54.84

A = Profit Share (%) of SEs in Profits of NDEs

B = Profit Share (%) of Trading and Marketing Enterprises in Profits of NDEs

B₁ = Profit Share (%) of Trading and Marketing Enterprises in Profits of SEs

C = Profit Share (%) of Financial Enterprises in Profits of NDEs

C₁ = Profit Share (%) of Financial Enterprises in Profits of SEs

D = Profit Share (%) of Telecommunication Enterprises in Profits of NDEs

D₁ = Profit Share (%) of Telecommunication Enterprises in Profits of SEs

Source: Computed from Public Enterprises Survey various years

consistently than other sectors. For instance, net profit in telecommunications business had, on average, been stable in the vicinity of 11%.

On the basis of the findings in the preceding sections, we may argue that the non departmental enterprises of the central government in the sphere of tertiary activities played a key role, especially in the decades prior to the onset of economic reforms. The performance of the service rendering public enterprises (in terms of certain indices) turns out to be mixed, contrary to the popular notion that the track records of public enterprises are usually poor.

Conclusion

On the basis of the preceding discussion and the figures furnishes, the broad observations that emerge are:

- (1) while the sales share of service enterprises (of the central government) in total sales of non departmental enterprises had shown a falling trend during the period under study, its share in the total net value added had, however, risen;
- (2) export of services by the NDEs had not been very significant;
- (3) even though the trading and marketing and transportation businesses accounted for major shares of sales within service enterprises, the supremacy of these two had increasingly been challenged by the public enterprises in the field of telecommunication and finance;

- (4) public sector enterprises in telecommunication and financial services has been playing increasingly important role in terms of generation of net profit; and
- (5) a closer look into the policy of disinvestment in public sector enterprises may be needed, given the impressive track record of some of the tertiary sub sectors (notably, finance and telecommunication).

APPENDIX

Table – A: Nominal and Real Net Value Added in Non-Departmental Enterprises (Rs.Cr.)

Year	NNVA _m	NNVA _s	NNVAT	RNVA _m	RNVA _s	RNVAT
1973-74	823	284	1107	1591	549	2140
1974-75	1244	359	1603	1908	551	2459
1975-76	1505	436	1941	2117	613	2730
1976-77	1713	706	2419	2265	934	3199
1977-78	1699	837	2536	2154	1061	3215
1978-79	2065	907	2972	2527	1110	3637
1979-80	2389	1005	3394	2647	1114	3761
1980-81	2946	1075	4021	2946	1075	4021
1981-82	4392	1315	5707	3685	1103	4788
1982-83	5484	1500	6984	4181	1144	5325
1983-84	6147	1672	7819	4282	1165	5447
1984-85	7307	2120	9427	4733	1373	6106
1985-86	8137	2430	10567	4861	1452	6313
1986-87	9615	2893	12508	5319	1600	6919
1987-88	10492	3061	13553	5398	1575	6973
1988-89	12998	3611	16609	6152	1709	7861
1989-90	15430	4267	19697	6845	1893	8738
1990-91	16173	5282	21455	6477	2115	8592

Base: 1980-81 (for real series)

RNVA_m = Real Net Value Added in Manufacturing Enterprises (MEs)

RNVA_s = Real Net Value Added in Service Enterprises (SEs)

RNVAT = Total Real Net Value Added

NNVA_m = Nominal Net Value Added in MEs

NNVA_s = Nominal Net Value Added in SEs

NNVAT = Total Nominal Net Value Added

Source: Computed from Public Enterprises Survey (various issues)

Table – B: Real Sales of NDEs (Rs.Cr.)

Year	RSME	RSSE	TRS
1960-61	338	365	703
1961-62	487	454	941
1962-63	823	517	1340
1963-64	1124	520	1644
1964-65	1418	640	2058
1965-66	1885	1070	2955
1966-67	2274	1597	3871
1967-68	2734	2057	4791
1968-69	3203	2719	5922
1969-70	3797	3254	7051
1970-71	4194	3316	7510
1971-72	4651	3901	8552
1972-73	5690	5330	11020
1973-74	6942	6223	13165
1974-75	9063	6605	15668
1975-76	9973	6470	16443
1976-77	12365	7353	19718
1977-78	14054	8788	22842
1978-79	14899	8423	23322
1979-80	16873	8936	25809
1980-81	18618	10017	28635
1981-82	21614	8997	30611
1982-83	23612	8402	32014
1983-84	24175	8751	32926
1984-85	25601	9813	35414
1985-86	26602	10650	37252
1986-87	27493	10724	38217
1987-88	30514	11295	41809
1988-89	33935	10145	44080
1989-90	36607	10449	47056
1990-91	36607	10790	47397

(Base: 1980-81)

RSME = Real Sales of MEs; RSSE = Real Sales of SEs; TRS = Total Real Sales

Source: Computed from Public Enterprises Survey (various years)

Table – C: Turnover Shares of Sub-Groups within SEs

Year	TMKTG	TRPN	TELCOM	FINANCE	Combined Share
1979-80	79.27	13.55	xxx	0.73	93.55
1980-81	78.38	14.38	xxx	0.81	94.47
1981-82	78.04	14.33	xxx	0.85	93.22
1982-83	75.55	15.11	xxx	0.96	91.62
1983-84	72.4	17.5	xxx	1.16	91.07
1984-85	73.76	16.28	xxx	1.15	91.19
1985-86	78.08	13.28	xxx	1.09	92.45
1986-87	77.47	14.2	xxx	1.21	92.88
1987-88	73.76	14.69	0.59	1.34	90.38
1988-89	73.8	13.67	0.46	1.87	89.8
1989-90	69.24	15.34	6.02	3.12	93.72
1990-91	64.8	17.14	6.07	4.1	92.11
1991-92	66.04	16.64	6.26	5.11	94.05
1992-93	65.9	16.26	6.32	6.02	94.5
1993-94	55.4	19.28	9.17	7.41	91.26
1994-95	56.88	18.68	9.03	6.97	91.56
1995-96	58.29	18.2	9.07	6.07	91.63
1996-97	56.6	18.65	9.81	6.93	91.99

TMKTG = Trading and Marketing; TRPN = Transportation; TELCOM = Telecommunication

Source: Computed from Public Enterprises Survey (various years)

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Financing India's Development – A Case Study of Water Pollution in Yamuna

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Abstract

This opinion article is a revised draft of notes written by the author for peer-review exercises in the Financing for Development Massive Online Open Course (MOOC), and incorporates some of the author's learnings from the same. The first part summarizes the scenario for financing India's sustainable development in the context of the *Sustainable Development Goals*, with a focus on relevance of Official Developmental Assistance (ODA). The second part deals with the application of the polluter pays principle to address the problem of water pollution in the Yamuna River in Delhi to showcase how market-based mechanisms can be used for mobilizing domestic resources for sustainable development.

I.

India's Development Financing Scenario

India has a huge potential to generate financing for sustainable development via domestic public and private sources as well as foreign capital inflows, the quantum of which cannot be matched by Official Developmental Assistance (ODA). Rather, the concessional cost of ODA and the technical expertise which accompanies it is of

paramount importance. Below are some figures which put the size of ODA in perspective of India's overall financing scenario:

- Net ODA disbursements to India were US\$ 2.5 billion, roughly 0.15% of its Gross National Income¹ (GNI) during 2009-13 (www.aidflows.org).
- World Development Indicators (WDI, 2015) data shows that India's domestic savings (mainly from households) averaged 33.7% of its GNI over the same period.
- Over the same period, average net foreign direct investment inflows into India were 1.80% of GDP. In fact, net *outflows* of direct investments from India were 0.67% of GDP (WDI, 2015).
- Finally, net ODA received during 2009-12 on average accounted for a mere 0.98% of the Indian federal government's expenditure (WDI, 2015).

Thus, while ODA cannot make a big impact in terms of the quantum of financing, India needs the expertise of the developed countries and multilateral development banks (MDB) to be able to efficiently mobilize domestic and external finances and spend them more effectively on key areas of human development,

¹ The difference between India's GDP (US\$ 2,067 billion) and GNI (US\$ 2,036 billion) as of 2014 (WDI, 2015) can be ignored or the purposes of this article, as the focus is on orders of magnitude rather than exact financials.

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infrastructure development, job creation, and sustainability. Some key areas of concern which need to be addressed to boost development financing are:

- India has one of the highest household savings rate for major economies, with the largest contribution coming from households. Yet, 47.2% of India's roughly 1.2 billion people do not have a bank account according to the *World Bank Global Findex Database 2014*. Most of the household savings instead get channeled to unproductive physical assets and ornaments (60% of net household savings in 2013-14). Furthermore, being a *young country*, India's savings rate is likely to remain high in years to come, which represents a huge opportunity for resource mobilization via the domestic banking sector and capital markets if the lack of access to organized sector financial intermediaries is addressed.
- India's federal plus states tax revenue is currently around 17% of its GDP, indicating scope for improvement in domestic resource mobilization via improved tax administration.
- India has a low ranking in the World Bank's Ease of Doing Business (*139 out of 189 in 2015*) – indicating that the regulatory scenario has much scope for improvement to attract domestic and foreign investments, which would support job creation.
- Finally, due to higher cost of

resource mobilization from non-ODA sources for India (the *Indian government* borrows at around 8% for 10 years as compared to 2.2% and 0.3% for the *US* and *Japanese* governments respectively), whatever ODA India does receive would be cost efficient. If used to “crowd-in” other sources of finance, especially from the private sector, even small amounts of ODA can have a multiplier effect.

These are just a few examples of how India can generate financial resources for development by building on its current and existing policies if they are implemented properly. The next section describes a proposed solution to a sustainable development financing problem.

II.

Financing a Cleaner Yamuna in Delhi

While there are complications for countries to reach consensus on climate change financing due to the ‘global public bad’ and historical nature of greenhouse gas emissions, developing countries such as India need to address local pollution problems to ensure environmental sustainability. The best place to start is by explicitly acknowledging that future generations of citizens have legal property rights over the natural environment, and therefore polluting today has a cost associated with it which future generations need to be compensated for. These same monies can be used for mitigation measures.

Localized pollution of the environment is caused by human production and consumption activities. There is usually an absence of disincentives for the polluter; in fact, there are in some cases incentives (via price signals which are manipulated by consumption/production subsidies such as those for oil products/fertilizers respectively) to pollute more. Correcting such misleading price signals can provide a large source of domestic resources to finance sustainable development simply via domestic reallocation.

One such story begins about 6,387 meters above mean sea level at the Yamunotri Glacier in district Uttarkashi in the State of Uttarakhand in India, at roughly the co-ordinates: 38° 59' N 78° 27' E. Yamuna- in Hindu Mythology- is a Divine Goddess, associated with the values of sanctity and purity.

After traveling 396 kms the Yamuna reaches Delhi at the Wazirabad Barrage, where the water is collected for municipal use. During the dry season of September-May no water is allowed to pass through this barrage, implying that the water flowing through the river's 22 km Delhi stretch up to the Okhla Barrage is "untreated or partially treated" wastewater alone. The area of marshland surrounding the Okhla Barrage is a designated Bird and Wildlife Sanctuary, serving as a resting place for migratory birds from as far as Tibet, Europe and Siberia, with over 300 species of birds having been spotted here, along with various species

of mammals and reptiles. This spot is favorable for the migratory birds as they follow the route of the Yamuna, and the area provides adequate food and habitat.

Purity is not an attribute one would associate with the quality of water in the river as it flows through Delhi and accumulates at the Okhla Barrage. The wastewater contains industrial effluents as well as household sewage, which severely impact oxygen availability and pH levels of the water and reduce marine and marshland biodiversity, while depositing heavy metals such as arsenic, nickel, cadmium, etc. into the food chain. Untreated biological waste also promotes the growth of invasive marine flora which make survival difficult for other marine species. Water pollution is also generated by thermal power plants on the banks of the river.

On the other hand, the marine ecosystem of the Okhla Barrage purifies the water which is diverted into the Agra canal for irrigation and to the Badarpur power station.

There is need for systems to mitigate the polluting activity of households, firms, and power plants. The simplest way to do this is could be to have wastewater purification plants installed at the point sources of pollution. Wastewater treatment plants would have explicit construction and operational costs associated with them, but how can some of the benefits (human-centric) be measured? Below are some attempted answers:

- Aesthetic value of clean Yamuna and Okhla Bird and Wildlife Sanctuary
- Religious value of clean Yamuna
- Recreational value of clean Yamuna and Okhla Bird and Wildlife Sanctuary
- Option value of clean Yamuna and Okhla Bird and Wildlife Sanctuary

The above values can be derived through household-level surveys in the National Capital Region to determine how much money people would be willing to pay for the benefits of having a clean Yamuna and a more thriving Okhla Bird and Wildlife Sanctuary. Below are some public goods which would be generated by improving the water quality in the river:

- Cleaner water for downstream users
- Removal of pollutants from food products (river fish and agricultural produce grown on the river banks)
- Increased local availability of marine food (especially river fish which is quite popular in India)
- Scientific/ educational value (especially ornithological)
- Water storage
- Recharge of aquifers with cleaner water which can be tapped for household water use

It can thus be shown that there would be intangible and difficult to measure

public-good benefits but tangible costs associated with this project; how can the project be financed? Note that the final polluter in this case is the municipal authorities and power producers which transport the wastewater from the end-users (households and firms) to the river. Below are some suggestions:

- To begin with, ensure that all users comply (i.e. no one is free-riding) with payment of the basic amount of fees to cover operating costs of utilities (sewage systems and electricity)
- The next step could be to take into account the environmental costs of the services which are being provided to end-users and incorporate them into the price of the services. Chemical pollutants could be targeted first, then biological pollutants
- The above environmental charge should be imposed in discreet slabs to give efficient signals to users.

The feasibility of an environmental charge on sewage and power services would be politically sensitive and therefore would need to be handled accordingly, along with emphasis educational campaigns and citizen engagement components. This charge is intended to not add to the burden on the end-users, but rather to eliminate excesses/inefficiencies in the use of the public utilities' services. The idea is to disincentivize those who are over-using the service because it is not

priced correctly, and therefore over-polluting as compared to the local average.

Thus, the financing for this project can come from the local community itself; what will be needed is support in implementation through the project

life cycle, which can be provided by MDBs via their global expertise in governance issues and technical solutions. Once the price signals are corrected and adjusted to account for externalities, the scope for entry of private investments into these sectors would also be created.



Advertisement Rates for the Bombay Chamber Review

Size of Publication	:	8.25" x 11.75" (A/4)
Size of advertisement	:	7" x 11"
Advt. material requirement	:	Soft copy - PDF or CDR Format

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Bombay Chamber of Commerce and Industry Trust for Economic and Management Studies

The Bombay Chamber of Commerce and Industry Trust for Economic and Management Studies was constituted in 1996 by the Bombay Chamber of Commerce and Industry to undertake independent research activities on various economic and management issues and for providing analytical views on macro-economic scenario, industrial performance and other issues of topical interest.

The Trust started publishing the quarterly magazine 'AnalytiQue' for the quarter October-December in the year of 1999 to serve as an effective vehicle of communication between the government, industry, economists, thinkers, management consultants and scholars. In its short journey the magazine had some trying spells and after the issue of January-March, 2006 there has been no issue. However, after four years, the Trust published the next issue as Journal in March, 2010. While retaining its basic purpose and character, AnalytiQue now continues to serve members, who are drawn mainly from the world of business and commerce and deals with contemporary economic issues while documenting some of the important developments of the Indian economy.

Bombay Chamber of Commerce & Industry Trust for Economic and Management Studies

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