

How Does the Tertiary Sector Grow? The Indian Experience

Madhusudan Datta

Professor of Economics

University of Kalyani

West Bengal, India

I

Introduction

The study of structural change concomitant to economic development divides the set of all economic activities into three broad sectors - the primary, the secondary and the tertiary. In common usage the activities of the primary and the secondary sectors are described respectively as extractive and transformative in nature. All the diverse residual activities are then grouped together under the tertiary sector. One common feature of this group is that, barring minor exceptions, they do not result in any material product. In recent times many of these service activities have expanded so rapidly and the quality of the services have changed so vastly that many commentators have discerned in this phenomenon the emergence of the post-industrial society (Fuchs, 1968; Lewis, 1973; Singleman, 1978; Chanon, 1978; Miles and Irving, 1982; Liston, 1992).¹ Advances in information technology in the 70's and the 80's have revolutionized the organization of activities in distributive trade, banking and even in manufacturing. In fact the concept has developed that manufacturing is akin to a service. "Everybody is familiar with the concept of after-sales service. There is also service on delivery - just in time and however it is required, and the service on application, showing the customer how to use the product to best advantage. ... the manufacturers ... see the supply of goods almost as incidental to the service they supply (Lawrence, 1992). Thus in the 1990's the distinction between manufacturing and services have become somewhat fuzzy, though the extent of this influence is likely to vary from country to country and particularly between the developed and the developing countries.

However, economists have been making classifications for a long time and the study of sectoral trends has an established tradition (Clark, 1940; Kuznets, 1971). The share of the tertiary sector² in gross domestic product (GDP) is supposed to be linked to the degree of development of a country. Table-1 shows how important the service sector is for the developed countries today. Even in some developing countries like Brazil and Mexico this sector has a very high share in GDP. Question has been raised about the soundness of this development.

¹ The development has led to such anguished remarks: What will the service industries be servicing when there is no hardware, no wealth is actually being produced? We will be, probably, servicing the product of wealth by others..., we will become a curiosity. I don't think that is what Britain is about. I think that is rubbish. (Lord Weinstock, 1985, quoted in Liston, 1992).

² There is some ambiguity regarding the definition of the service sector, particularly with regard to the inclusion or exclusion of "Transport and Communication" in the tertiary sector. Here we follow Kuznets (1971) to classify the sub-sector in the secondary sector.

Table 1: Share of Services[#] in GDP, 1994			
Selected countries			
INDIA	42	UNITED KINGDOM	66
CHINA	32	JAPAN	58
INDONESIA	42	UNITED STATES*	66
BRAZIL	49	GERMANY*	60
MEXICO	64	FRANCE	70
<p style="text-align: center;">Source: <i>World Development Report, 1996</i> * Refer to 1990 based on <i>World Development Report, 1992</i> # Include transport and communications</p>			

Various reasons have led to the rapid growth of services. In developing countries in particular, with the faster growth of the manufacturing sector relative to GDP, service sector tends to grow fast as a large part of these activities, viz. - distributive trade, banking and insurance, etc. - is linked to the manufacturing activities. With this point in view a distinction between material and non-material services used to be made in the national product accounting of erstwhile socialist countries. How far are the above considerations relevant for the Indian economy? The question becomes especially relevant, as many observers do not view the rapid growth of the tertiary sector as a healthy development, particularly for a developing economy. It is felt that the basic necessities of life like food, clothing, etc., and the capital goods needed for growth, are all material goods. So, the rapid growth of the tertiary sector may be a distraction from the desired path of development. The objective of the present paper is to analyse the influences behind the rapid growth of the tertiary sector of the Indian economy during roughly the last five decades.

Table-2 shows the trend of the relative shares of agriculture, industry and services, and also of manufacturing and material services, in GDP of the Indian economy during the period 1950-51 to 1996-97. We see that the share of agriculture (which includes forestry and fishing) declined from 55 to 26 percent while the share of industry (which includes manufacturing, mining, construction and public utility) and transport together increased from 19 to 37 percent over the four decades. Increase in the share of the component manufacturing was also of the same order of magnitude - from 11 to 22 percent. The share of services (the tertiary sector) increased from 26 to 37 percent. But the share of material services (comprising of distributive trade and financial services but excluding transport which has been classified with industry) increased very rapidly from 10 to 22 percent, which really

implies that the share of non-material services actually declined marginally from 16 to 15 percent. This is quite interesting.

We may now look at the sub-sectors of the tertiary sector. Table-3 presents the trend of the relative shares of the sub-sectors. The estimates presented here are somewhat different from the official estimates in two important respects. Firstly, our estimates of the share of commercial banking services are based on a new approach explained later in the paper. Our approach is different from the official approach in some important respects and our estimates show the improvement in commercial banking's share in GDP to be slower than the official estimates. This, however, does not affect GDP significantly. Secondly, the estimates for Public Administration and Defence (PA&D) are our adjustments of official estimates (explained in section IV). The adjustments lead to a sharp downward revision of the share of PA&D.

Table2: Share of Broad Sectors in GDP At constant prices (1980-81 =100)						
SECTORS	1950-1	1960-1	1970-1	1980-1	1990-1	1996-7
AGRICULTURE	55.4	50.9	44.5	38.1	30.9	26.1
INDUSTRY including TRANSPORT Manufacturing	18.6 (11.2)	22.9 (13.4)	27.1 (15.7)	30.6 (17.7)	35.3 (21.1)	36.8 (22.5)
SERVICES Trade and Finance	26.0 (9.6)	26.2 (11.2)	28.4 (12.8)	31.3 (14.8)	33.8 (17.8)	37.1 (22.4)
<i>Source: CSO, National Accounts Statistics, different issues.</i>						

Table-3 shows that the share of distributive trade in the tertiary sector increased rapidly during the first decade and relatively slowly but steadily during the next three decades. The increment for banking (including the whole of finance and insurance) was dramatic - from just 7.8 percent in 1950-51 to as much as 27.1 percent in 1996-97. The rate of this increment was rather moderate during the first two decades but it accelerated during the later decades. The share of public administration in the tertiary sector remained stagnant during the decade of the 50's, but it increased during the 60's and declined thereafter. We may note here that the decline in the share of Public Administration and Defence has taken place despite significant increase in the expenditure on public administrative services expressed as a share of GDP. The rest of the activities of the tertiary sector taken together declined steadily and rapidly throughout the period

concerned. Among the components of this residual category are the miscellaneous 'legal, religious and recreational, domestic and other personal' services.

In the subsequent three sections of the paper we take up an analysis of the growth of the three major sub-sectors - distributive trade, finance and public administration - and then in section V we take a bird's-eye view of the development of the tertiary sector. Section VI concludes the study with a brief discussion of the implication of the growth of services on the relative weights of material and non-material production.

	Distributive Trade	Finance	Public Administration	Real Estate & C.	Tertiary/GDP ratio
1950-51	32.3	7.8	11.5	48.3	26.9
1960-61	36.4	9.5	11.6	42.5	27.6
1970-71	37.2	10.2	14.7	37.9	30.5
1980-81	38.1	14.0	14.1	33.8	34.1
1990-91	38.5	24.1	9.8	27.7	34.2
1996-97	41.8	27.3	8.4	22.4	39.6

Source: Tables 20 and 21

II

The Growth of Distributive Trade in India

Distributive trade constitutes by far the largest sub-sector of the tertiary sector of India. The share of the sub-sector in GDP at factor cost (referred to here as the trade ratio) gradually increased from 8% in 1950-51 to more than 13% in 1996-97 (table-4). Ignoring short interruptions, over the whole period of about five decades value added in trade services increased at the rate of about 4.9 percent per annum. This is about 0.8% higher than the rate of growth of GDP at factor cost. This fact is reflected in the growth of trade ratio at 0.8% per annum.³ Our purpose here is to understand the factors affecting the growth of trade services both absolutely and relative to the growth of GDP.

³The trends are obtained by fitting the following semi-logarithmic curves: $\log(\text{value added in trade}) = 3.52 + 0.049*T + 0.788*AR(1)$; $R^2 = 0.998$, $DW = 1.69$. And $\log(\text{trade ratio}) = -2.45 + 0.0083*T + 0.838*AR(1)$; $R^2 = 0.974$, $DW = 2.13$. All the coefficients are significant at 1% level. AR(1) refers to first order autoregressive correction.

If the process of material production is viewed as extending from extraction of resources from nature to distribution of the final product to the users, then trade is an integral part of this process. So, the growth of trade services may be viewed as the result of an expansion of the production process. But the point

TABLE 4: GDP and Trade Ratio (at 1980-81 prices) Unit: Rs '00 crores

Year	GDP (Factor Cost)	Value Added (Trade)	Trade Ratio
1950-51	429	34.4	0.080
52-53	451	36.4	0.081
54-55	499	40.4	0.081
56-57	541	46.5	0.086
58-59	575	49.4	0.086
1960-61	629	57.3	0.091
62-63	662	64.2	0.097
64-65	749	74.0	0.099
66-67	729	76.3	0.105
68-69	808	82.5	0.102
1970-71	904	91.6	0.101
72-73	910	93.7	0.103
74-75	963	102.1	0.106
76-77	1063	115.4	0.109
78-79	1205	136.0	0.113
1980-81	1224	138.4	0.113
82-83	1339	155.3	0.116
84-85	1504	170.9	0.114
86-87	1633	196.3	0.120
88-89	1885	219.8	0.117
1990-91	2123	249.3	0.117
92-93	2234	267.2	0.120
94-95	2577	323.7	0.126
96-97	2968	402.9	0.136

Source: CSO (1979a, 1988 1992, 1995 and 1998

sometimes gets embroiled in other considerations. Some 'unscrupulous' activities of traders, like cornering and hoarding of commodities with the objective of black marketing and profiteering leads to a popular resentment against the activities of traders. It is reasonably felt that if profit (and, so, value added) can be increased just by these means then this value does not have a material counterpart (Datta, 1989). However, the point here really is the artificial inflation of price and this is discounted in the constant-price estimates of trade services. It should be clear from the method of estimation of real value added in trade.

The CSO arrives at the annual estimates of constant-price value added in trade by blowing up a benchmark estimate by the quantum index (for the organized sector) of goods transacted or the index of gross trading income (GTI) at constant prices (for the unorganized sector). The CSO estimate of value added in trade for the bench mark year is arrived at on the basis of detailed results of the population census, the economic census and its follow up surveys, and other relevant reports of companies. Where data are not directly available, as in the case of the unorganized sector that accounts for the lion's share of trading activities, the estimates of GTI are arrived at by using estimates of marketed surplus, even if rather imprecise, and guestimates of trade margins (vide CSO, 1989); trade margin is effectively a fixed proportion of trade and transport margin. For constant price estimates, the margin for each commodity is taken as constant over time. Thus, the method adequately discounts for artificial price inflation.

Two Components of Distributive Trade

Our question now is: does the rising share of trade reflect the changing structure of the Indian economy? To answer the question we use the framework of input-output transactions of the economy. Let us use the following notations:

x_{ij} = i th commodity used as input in the production of the j th commodity

C_i = consumption of the i th commodity

I_i = gross investment of the i th commodity

G_i = government consumption of the i th commodity

(The quantities include imported items, $i, j = 1, 2, \dots, n$)

α_i^I = proportion of total intermediate use of the i th commodity
handled through traders

α_i^F = the proportion of total final use of the i th commodity
handled through traders

π_i = value added through trade per unit value of commodity i traded

Y = GDP at factor cost

The trade ratio, μ , may then be split in the following manner:

$$\mu \equiv \frac{\sum_{i=1}^m \left(\sum_{j=1}^n x_{ij} \right) \alpha_i^I \pi_i}{Y} + \frac{\sum_{i=1}^m (C_i + I_i + G_i) \alpha_i^F \pi_i}{Y} + \text{export trade ratio} \quad \dots\dots(1)$$

In the above expression 'i' runs from 1 to m because many commodities - mainly services - are not traded. But they use intermediate inputs in their rendering; so, 'j' runs from 1 to n. 'm' is the number of commodities traded while 'n-m' is the number not distributed through trading. We consider all the variables at constant (1980-81) prices.

Incidentally, the time series for export trade ratio does not show any strong trend different from that of the overall trade ratio and it constituted roughly around 7 percent of total trade over the period.⁴ Henceforth we refer to the ratio shown in equation (1) excluding the last term (the export trade ratio) as the share of trade excluding exports (STRDX) and denote it by $\hat{\mu}$. Further, we refer to the first term to the right hand side of the equation as the intermediate trade ratio (ITR) and the second term as the final trade ratio (FTR). So, we write $\hat{\mu} = ITR + FTR$.

In the course of industrialization intermediate trade should come to be more and more determined by the progress of manufacturing activities as these activities are supposed to be more intermediate-input intensive compared to agricultural and service activities. But this consideration does not have a bearing for final trade. We may note here that the CSO does not estimate the value added in intermediate and final trade services separately.

⁴Towards the end of the 80's the export trade ratio started rising faster than the overall trade ratio.

The fact is that the TTM for different items of manufacturing are very close to each other. While the margins for items of the group food and vegetables vary quite a lot, for the group taken as a whole the margin seems to be quite close to those for items of manufacturing (CSO, 1989b, P.127). Therefore, it may not be a gross error to ignore the differences between the margins for different commodities and write the partial ratios as follows.

$$FTR = \frac{\pi \sum_{i=1}^m (C_i + I_i + G_i) \alpha_i^F}{Y} \quad \dots(2)$$

$$ITR = \frac{\pi \sum_{i=1}^m \left(\sum_{j=1}^n x_{ij} \right) \alpha_i^I}{Y} \quad \dots(3)$$

[Note that we have replaced π_i s of equation (1) by a uniform π in equations (2) and (3)]

As regards α_i^F and α_i^I s, where the superscripts F and I stand for final and intermediate products respectively, we may note here that the whole of the produce may not constitute marketable surplus for many commodities. Similarly, the whole of the marketable surplus of a commodity need not be distributed through traders. The proportion of such commodities in aggregate final products should have a negative relationship with the FTR. However the ITR will not be affected by the mode of handling of the *final* products. Clearly, a change in the composition of the basket of final goods may affect the FTR though this is not likely to affect the ITR directly. There should, however, be some indirect effects as the overall requirement of intermediate inputs is dependent on the composition of final demand. Splitting up of the trade ratio (STRDX) into the ITR and the FTR allows us to study the effect of the change in the composition of output on the trade ratio (henceforth we use the terms STRDX and trade ratio interchangeably) and thus view the trend in the ratio as a concomitant to the process of industrialization.

The Final Trade Ratio

The FTR is given by expression (2). The numerator of the expression contains only material goods that are distributed to the final users through trading business. However, the denominator is GDP (at factor cost). Clearly, if a new final service is introduced so that GDP rises; the numerator of (2) will, nevertheless, remain unaffected as the summation runs over only material goods. So the FTR

will fall. In general, we can say that the FTR will be negatively related to the share of final services in GDP. There is another major source of influence on the FTR. The bulk of agricultural produce (mainly cereals, pulses, and vegetables, a large part of which is kept for self consumption) is only partially traded. Further, construction is an activity that involves a lot of trade in intermediate inputs, but the final product - a building or a highway, for example - is not distributed through trade. At this stage it is worth considering these points in somewhat detail. Consider equation (2):

$$FTR = \frac{\pi \sum_{i=1}^m (C_i + I_i + G_i) \alpha_i^F}{Y}$$

We can call the expression within the summation sign as traded final material products (TRMP). It is quite understandable that we have excluded final services from the expression straight away as $\alpha_i^F = 0$ for $i = m+1$ to n . Final material goods are tradable though a part of it may not actually be distributed through traders. For example, a large part of the major agricultural products are only partially traded. We have determined that a good approximation is to take 50% of cereals, pulses and vegetables as traded (CSO, 1989b. p.126).

Among the non-agricultural final material goods gross domestic capital formation has to be closely observed. GDCF includes 'construction' and 'change in stock' which do not involve final trade. Even the delivery of 'machinery and equipment' to final users do not always involve traders, as these are often installed by the manufacturers themselves. Input-output transactions table for 1978-79 (CSO, 1989c) shows that final trade constitutes only about 3.6% of the value of GDCF while the corresponding figure for private final consumption is 9.1%. Remembering that a small part of private final consumption (mainly food grains retained by producers for self consumption) is not traded, we take as a rough guess 30% of GDCF as traded.

We can now estimate roughly the value of final material goods that is traded (TRMP). We know that the value of domestic final uses of commodities and services equals GDP (at market prices) plus trade deficit (imports less exports). In order to obtain the volume of TRMP we have to deduct from the final domestic uses of commodities the consumption (both private and public) of services and the non-traded portion of final material products (all at constant prices). For this purpose we have taken the whole of 'community, social and personal services', 70% of 'real estate, etc.' and the same percentage of 'transport and communications,' as per CSO classification, as final

services.⁵The rest of the above services are used as intermediate inputs. Also, as already mentioned above, we have excluded half of the consumption of cereals, pulses and vegetables as retained by producers for self-consumption. For the category gross domestic capital formation we have guesstimated only 30% as traded, as mentioned above.⁶

The ratio of TRMP thus estimated, to GDP, denoted STRMP, should clearly be proportional to the FTR. It is possible to make a rough idea about the factor of proportionality from the input-output tables. The table for 1978-79 (CSO, 1989c) gives the intermediate trade to be 55% of total trade (excluding exports). Calculating FTR for the specific year on this basis and then comparing it with the STRMP we arrive at an estimate of the trade margin equal to 8.7%.⁷ Applying this margin on the STRMP we find an approximation of the time series of the FTR and deducting it from the STRDX we get the ITR.

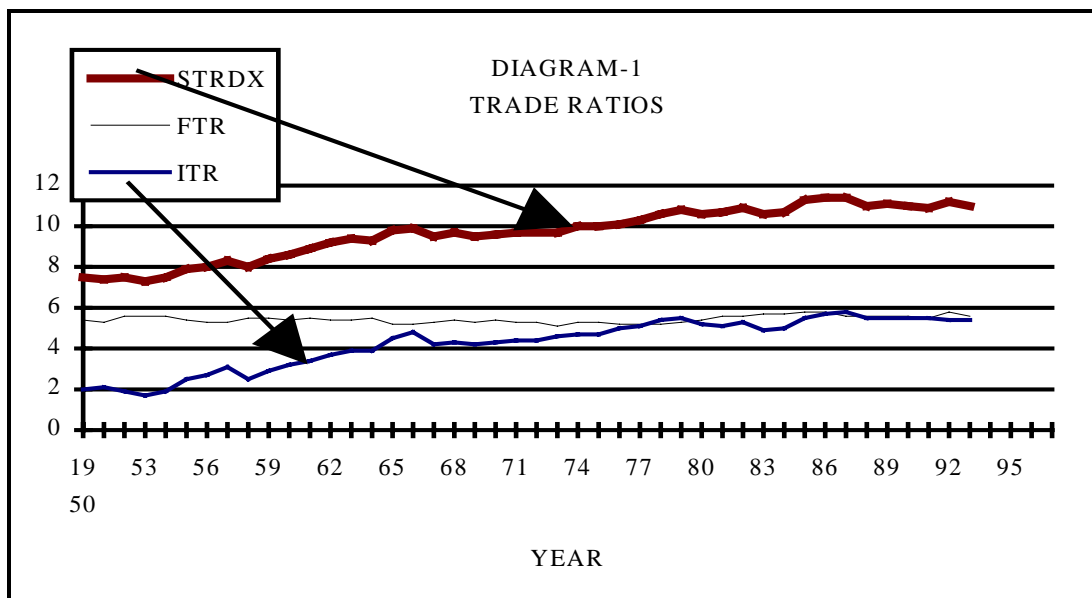
Diagram-1 shows the line diagram for the two series - the STRDX and the FTR, apart from the ITR. A look at the diagram makes it clear that the two series do not show the same pattern of trend. While the STRDX increased gradually, the rate of growth of the ratio declining very slowly, the FTR show the trend to be practically (though not statistically) insignificantly declining for the first half of the period and rising as slowly after that. This is reflected in the quadratic trend lines fitted

⁵The figure 70% has been arrived at after comparing roughly the expenditure on the items concerned as shown in the statements on private final consumption expenditure (CSO, NAS, various issues).

⁶ An important point is that we have not found any strong evidence of these proportions (of non-traded goods) showing either a rising or a falling trend.

⁷ Calculations based on input-output table, 1973-74 (CSO, 1981), also yield close result.

to the two curves⁸.



The FTR moved over a narrow band - from 0.051 to 0.058 - over the period under study, which means that it had practically no influence on the trend (though not the magnitude) of the STRDX. The rising trend in STRDX, therefore, reflects the trend in the ITR. Clearly, the value-added in distributive trade caused by the distribution of final goods to the users increased over the period under study practically at the same rate as GDP. The faster growth of overall trade services (and hence the positive trend in STRDX) must, therefore, be explained by the growth of intermediate trade faster than GDP. It is clear from the regression results that the trends in the STRDX and the ITR have similar patterns.

The Intermediate Trade Ratio

The ITR is given by expression (3) in section II. As in the case of FTR, we have taken the trade margin outside the summation because the margins do not vary much across commodities and so the simplification is worth making. However, unlike in the case of the FTR, the proportion of

⁸ Trend regressions for the three series (43 observations in each) STRDX, FTR and ITR yield the following results:

$\text{Log}(\text{STRDX}) = -2.644 + 0.021(t) - 0.00025(t^2)$; Coeff. AR(1) = 0.582, Adjusted $R^2 = 0.98$, DW=1.92

$\text{Log}(\text{FTR}) = -2.880 - 0.005(t) + 0.0001(t^2)$; Coeff. AR(1) = 0.549, Adjusted $R^2 = 0.58$, DW=1.91

$\text{Log}(\text{ITR}) = -4.056 + 0.067(t) - 0.001(t^2)$; Coeff. AR(1) = 0.532, Adjusted $R^2 = 0.96$, DW=1.72

(All the coefficients are significant at 5% level for all the three regressions.)

different groups of intermediate material inputs distributed through traders may, as a simplification, be taken as one.⁹ Then the new expression for ITR takes the simple form:

$$ITR = \frac{\pi \sum_{i=1}^m \sum_{j=1}^n x_{ij}}{Y}$$

Clearly, our task of finding out the sources of change in ITR now reduces to identifying the sources of change in the volume of material inputs used, $\sum_{i=1}^m (\sum_{j=1}^n x_{ij})$, relative to GDP. The summation includes, as explained earlier, material goods used as intermediate inputs in the rendering of services (j runs from 1 to n) but does not include services used as intermediate inputs ('i' runs from 1 to m, commodities m+1 to n being services) in production as services are not distributed through trading. Now, since GDP takes into account value added in all industries but different industries use different quantities of material inputs per unit of value added, change in the structure of the economy should affect the ITR.

Changing Structure of the Economy

The requirement of material inputs per unit of value added in the broad sectors 'agriculture and mining' (AGM) and 'services and utility' (SVU) are quite low compared to that in 'manufacturing and construction' (MNC). This is shown in table-5, which is based on the input-output tables published by the CSO. When we view this in the light of the fact that the Indian economy has undergone a substantial structural change over the last four and a half decades (table-6) its implication for the ITR becomes clear.

Table: 5 Intermediate Trade per Unit Value Added (percentage)			
Year	AGM	MNC	SVU
1968-69	1.28	23.31	2.95
1973-74	1.32	23.76	3.82
1979-80	3.43	27.65	5.05

⁹In our view, this simplification is worth making. For FTR self-consumption was a major reason for α_{is} to be different. For ITR similar considerations are not very relevant, though, to some extent, vertical integration may cause α_{is} to be less than unity and this need not affect all commodities in the same way. Nevertheless, the simplifying assumption should give us insight into the dynamics of the ITR.

Note: AGM = agriculture and mining, MNC = manufacturing and constructions, SVU = services and utility.

Source: CSO (1978, 1981), National Accounts Statistics, CSO (1989), Input-Output Transactions Table:1978-79

Table: 6 Share of Sectors in GDP (at current prices)			
Year	AGM*	MNC*	SVU*
1950-51	56.5	14.3	29.2
1955-56	47.9	17.1	35.0
1960-61	46.8	19.2	34.0
1965-66	45.1	20.2	34.7
1970-71	46.1	19.9	34.0
1975-76	41.7	21.3	37.0
1980-81	39.6	22.7	37.7
1985-86	37.1	23.1	39.8
1990-91	33.5	24.7	41.8
1993-94	32.7	22.9	44.4
1996-97	28.8	25.4	45.8

* Abbreviations explained in note on table 3.

Source: CSO (1989,1992,1995, 1998), National Accounts Statistics, N Delhi

We note that the share of MNC in the aggregate value added (GDP) has increased from just one-seventh to about one-fourth over the period concerned. Whereas, intermediate trade requirement per unit of value added in this sector is several times (more than five) higher than those in the other sectors (AGM and SVU). So, one should expect quite a significant increase in the ITR over the period caused by the changing shares of the major sectors of the Indian economy. We may call this the *structural effect*.

There seems to be another influence working in the same direction. Table-5 shows that the intermediate trade per unit of value added in all the sectors of the Indian economy has been rising gradually over the decade from 1968-69 to 1978-79. Another evidence seems to indicate the presence of the same influence over a longer period of time in the manufacturing sector (table-7).

Over the three decades from 1960-61 the proportion of material inputs to the value of gross output in each of the three use-based categories of the registered manufacturing sector of India has increased (albeit) slowly. It may be noted that the material input intensity is the highest in the consumption goods sector but the share of this sector in total output of the registered manufacturing sector has declined rapidly.

Table: 7 Material Input to Gross Output Ratios				
Registered Manufacturing Sector (Current Prices)				
Year	1960-61	1970-71	1980-81	1991-92
Consumption Goods	73.0	76.1	76.4	82.1
Basic+Intermediate	66.1	65.5	76.0	77.1
Capital Goods	65.9	69.6	73.1	73.4
Overall Manufacturing	69.8	71.5	75.4	77.9

Note: The first three columns are based on CSO (1984), Bulletin No. ISD/9; the last column is based on CSO (1995), Annual Survey of Industries. The last row is calculated from the appropriate elements of tables 7 and 8.

In spite of this structural change in the manufacturing sector the input intensity of the overall registered manufacturing sector has increased (observed from the last row of table 5) over time. Thus the evidence suggests that the Indian economy tended towards gradually more intensified use of intermediate inputs in all the sectors (table-3) and particularly so in the manufacturing sector (table-7). This must have contributed to, independently of the structural effect, the rising trend of the ITR. We may call it the *intensification effect*.

Table: 8 Shares of Use-based Categories in Aggregate Output				
Registered Manufacturing Sector (Current Prices)				
Year	1960-61*	1970-71	1980-81	1991-92
Consumption Goods	54.8	46.8	36.1	32.9
Basic+Intermediate	27.2	29.0	39.6	42.5
Capital Goods	18.0	24.3	24.3	24.7

Note: The first column is based on CSO (1984), Bulletin No. ISD/9; other columns are based on CSO (1986 and 1995), National Accounts Statistics.

Table: 9 Regression Results			
Dependent Variable is ITR		No. of observations: 43	
VARIABLE	COEFFICIENT	T-STAT.	
SMNC	0.1526	28.2284	Adjusted R-squared 0.937
TIME	0.0005	10.6554	Durbin-Watson stat. 0.5048
First order autoregressive error correction			
SMNC	0.1776	7.1830	Adjusted R-squared 0.9698
TIME	0.0003	1.5492*	Durbin-Watson stat 2.0256
AR(1)	0.8132	7.7308	
Unit root test:			
Dependent variable – First difference of residual			
Residual(-1)	-0.4809	-3.6639	Adjusted R-squared 0.2420
			Durbin-Watson stat 1.9791
Dickey-Fuller t-statistic		-3.6639	*statistically insignificant at
McKinnon critical value (10%)		-3.6656	10% level.

SMNC = GDP share of value added in manufacturing and construction

It is now interesting to check how far the structural effect and the intensification effect explain the ITR. We run ordinary least squares of ITR on the share of the MNC in GDP and time. Time is supposed to be a proxy for the intensification effect. Though we do not have a sufficient basis to assume that the intensification effect acted to increase trade coefficients steadily over time, using a trend term in the regression seems to be a useful check. The regression results presented in table-9 show the coefficients of SMNC to be highly significant and of the proper sign. Time has, as expected, a slow but positive impact on the ITR. AR(1) in the second regression represents first order auto-regressive correction. Necessity for this correction is shown by the very low D-W statistic for the first regression. The serial correlation of the error terms is perhaps not unexpected as estimates of the ITR involve a number of approximations (to arrive at the estimates of the FTR). Again, the fact that the coefficient of time is not statistically significant even at 10 percent level may only indicate that the intensification effect did not operate very smoothly over time. Unit root test shows that ITR and SMNC are not cointegrated at 5% level of significance but they may be taken as cointegrated at about 10% level.

The Trade Ratio, The ITR and the FTR

We have now analysed the two components (the FTR and the ITR) of the overall trade ratio (the STRDX). It may be recalled that estimates of the ITR are derived as $ITR = STRDX - FTR$, where the FTR for the year 1978-79 is obtained by using the intermediate trade to final trade ratio given by the 1978-79 input-output table published by the CSO. Annual estimates of the FTR are then obtained by blowing up the particular estimate by the indices of the STRMP. A problem is that the estimates of the ITR thus become susceptible to the particular input-output table used. The problem becomes really disconcerting if we compare (Datta, 1988) the input-output tables published by the CSO with one for the year 1979-80 published by the Planning Commission (1983). Therefore, it does not seem to be justified to hold estimates (magnitudes) of the ITR based on any particular input-output table to be the correct one. (This comment, however, need not be valid for the trend.) Hence we seek to ascertain how significant the explanatory variables for the ITR and the FTR are in explaining the overall trade ratio by avoiding using any estimate of the ITR. From the discussions of the previous sections the following relationships may be specified:

$$FTR = b_1 \cdot STRMP \dots (i) \quad ITR = b_0 + b_2 \cdot SMNC + t \dots (ii) \quad STRDX = ITR + FTR \dots (iii).$$

$$So, combining (i) (ii) and (iii), STRDX = b_0 + b_1 \cdot STRMP + b_2 \cdot SMNC + t \dots (iv)$$

For testing the relationship by using ordinary least squares (OLS) we must add a stochastic error term to the relation. Regression of ITR presented in the last section shows that b_0 in relation (ii) is insignificant. An interpretation of the insignificant constant term is that when there is no output of manufacturing and construction ($SMNC = 0$) intermediate trade is negligible because intermediate inputs are used predominantly in manufacturing and construction. We subject the relation (iv) with a stochastic error term to OLS and find b_0 to be insignificant again. Then we run OLS after dropping the constant term and obtain the results presented in table 10.

All the coefficients of regression are found to be positive and statistically significant at 5% level. The explanatory variables together explain about 98% of the variation in the. As noted earlier, the STRMP does not show any notable upward trend over the period under study but SMNC shows a strong trend (table 10). Thus the above result is in conformity with our contention that it is the ITR that causes the rising trend in the trade ratio. It is to be noted that the coefficient of 't' here is significant at 5% level while that is insignificant even at 10% level for the regression of the ITR (table-9). Thus the results of table-10 seem to confirm the hypothesis of significant intensification effect also.

Table: 10 Regression Results			
Dependent Variable is STRDX			Number of observations: 44
VARIABLE	COEFFICIENT	T-STAT	
STRMP	0.0422	7.3077	Adjusted R-squared 0.9751
SMNC	0.3211	14.6000	Durbin-Watson stat 0.9751
TIME	0.00014	2.4644	
First order autoregressive error correction			
VARIABLE	COEFFICIENT	T-STAT.	
STRMP	0.0457	5.6696	Adjusted R-squared 0.9799
SMNC	0.3063	10.2657	Durbin-Watson stat 1.9103
TIME	0.00018	2.2477	
AR(1)	0.5252	3.8332	
Unit root test:			
Dependent variable – First difference of residual			
Residual (-1)	-0.4731	-3.6020	Adjusted R-squared 0.2354
			Durbin-Watson stat 1.8752
Dickey-Fuller t-statistic		-3.6020	
McKinnon critical value (10%)		-4.0507	

STRMP = share of traded material products (value) in GDP and SMNC = share of value added in manufacturing and construction in GDP.

The problem of serial correlation of errors is serious in the present regression too and we use first order autoregressive correction. The coefficients change only marginally after the correction and they all remain significant at 5% level. However, unit root test of cointegration shows that the null hypothesis of unit root is now not rejected even at 10% level.

In spite of the absence of an unambiguous support from the regression analysis, the analysis of the present section, in our view, strongly supports our contention that the steady increase in the trade ratio over roughly the last five decades has been caused by structural changes in the economy associated with economic development. This structural change has affected mainly the ITR through the *structural effect* and the *intensification effect*. The structural effect is the change in the GDP shares of the different sectors of the economy leading to greater use of intermediate inputs. The intensification effect points to the phenomenon of growing intensity of intermediate input use more or less in all the sectors of the economy. Throughout the period FTR has remained more or less steady at a fixed level.

III

Finance

The major financial institutions (FI) in India are the commercial and cooperative banks, the non-banking financial companies (NBFC), and various insurance companies. These companies (apart from some insurance companies) mainly play the role of intermediaries between the net savers and net borrowers. Clearly, rapid growth of FI's is an essential requirement of modern economic development.

One index of the pace of growth of the FI's is obviously the growth of value added in the sector relative to GDP. But in studying the trend of value added in different FI's there is need for caution. The formula used for computing the value of intermediation service (FI's other than banks do not provide liquidity service in any important measure) is the same for all FI's. The value is the interest and dividend receipts less interest paid out to depositors (CSO, 1989b, P.140). Since NBFC's own a relatively large proportion (*vis-à-vis* commercial banks) of funds at their disposal, they pay out a relatively small part of their receipts to their depositors or investors. Consequently, their service tends to be overvalued compared to similar service from banks for which the borrowers may be paying the same interest. Herein lies a disparity. The '*basic*' interest, which we define as the sum of the imputed value of 'liquidity' service and actual interest paid out by banks to their depositors (Datta, 1991), paid out by banks to households (depositors), which is treated by the CSO as generated in the borrowing enterprises, constitutes the source of disparity¹⁰. It is largely because of this element that, as per CSO estimates, the NBFC's are found to have far overtaken commercial banks in terms of contribution to GDP in 1995-96 (table - 11). This is, of course, not to undermine the phenomenal growth of the NBFC's during the decade of the 90's. But, in spite of this growth, the deposits of the household sector kept with the NBFC's, is only half of that kept with the commercial banks in 1995-96 (EPWRF, 1997, P.22).

Commercial banks and non-bank financial companies account for the lion's share of services rendered by the sector 'finance' (table-11). According to the official estimation procedure these two

¹⁰ SNA (1993) makes a modification *vis-à-vis* SNA (1968) in the computation of income generated in financial intermediaries. The funds owned by the intermediaries are no longer supposed to generate any intermediation service. So, the value of intermediation service, under the new system, will be smaller than before (SNA, 1993, PP. 139-40).

categories of institutions render intermediation service, which is almost wholly an intermediate input in other sectors, particularly, industry. This view ignores an important service, the liquidity service (as mentioned above), rendered by commercial banks to depositors. This service is to be viewed mainly as a final service enjoyed mainly by individuals. Before proceeding further, we will attempt at correcting the flaw in the official estimation procedure regarding the measurement of commercial bank services.

Year	Commercial Banks	Basic Interest	NBFCs	Insurance Companies	Total VA *
1960-65	316	415	56	235	1387
1965-66	404	525	102	525	1852
1970-71	588	695	165	675	2513
1975-76	788	1091	243	784	3408
1980-81	1385	1903	420	848	5361
1985-86	2237	3290	1152	1231	9110
1990-91	3832	4355	3687	1842	15524
1995-96	5338	6280	10141	2621	26080

* Includes cooperative banks and other companies not elsewhere classified.

Source: CSO, different issues of National Accounts Statistics

Note: NBFC = non-banking financial companies; VA = value added

Official Measure of CB Services

The major source of commercial banks earnings is loans and investments made out of deposits. In the process of mobilization of deposits (mainly from households) and their allocation as loans and investments banks allow the depositors the facility of making withdrawals and transfers through cheques. Thus fund owned by one set of people or institution (the depositors) is made available to another set of people or institutions (the borrowers) through the intermediation of banks. At the same time the depositors enjoy the liquidity of their fund. Clearly, two major services rendered by CB's are intermediation and liquidity services. It is the mode of bank's realization of charges for these services (discussed below) that creates the problem of their valuation. Other services rendered by CB's (e.g., trust services and services related to foreign exchange transactions) account for a relatively small part of their total earnings. We will call the charges on these services `direct

charges' in order to distinguish them from banks' share of earnings in the form of interest or dividend on loans and investments.

The United Nations System of National Accounts (SNA) forms the basis for the measure of CB services adopted by the CSO (UN, 1968; CSO, 1989, UN, 1993)). This measure ignores the liquidity service rendered by CB's. Their interest and dividend income (for simplicity we will refer to it as just interest income) out of loans and investments made is divided into two parts. A part, which is paid out by banks to their depositors as interest on deposits, is considered as income generated in the units that receive the loan or the investment (henceforth referred to as borrowing units, for simplicity). The other part of CBs' interest income, which is retained by the banks themselves, is taken as the value of intermediation service rendered to borrowers. The service is, therefore, an intermediate input to firms but a final service to the government or the household (CSO, 1980, pp. 47-48), as in the case of the government or the household the loans are considered to cater to final consumption.

The question that immediately comes to our mind with respect to the above procedure is that a part of CB's interest income from loans given to households and the government (consumption loans), which is paid out by banks as interest on deposits, cannot be treated as having been generated in the borrowing units; because that would be tantamount to treating consumption as productive. The CSO bypasses this problem by excluding this part of banks interest receipts from the GDP; though the amount, as any other interest receipts by CB's, accrues in the process of bank's business. Thus a (small) part of income realized by CB's is left out of account from GDP.

The other question with respect to the official approach, as mentioned above, is the neglect of the liquidity service. It is interesting to note here that Ruggles and Ruggles (1956) takes the opposite approach of ignoring the intermediation service and treating the entire amount of bank's retained interest income as the imputed value of the liquidity service to the depositors (see also Gorman, 1969). This approach treats CB's as representatives of the depositors in receiving interest income from the borrowing units that have generated (it is supposed) the factor income (interest). The problem of the treatment of interest receipts from consumption loans remains in this approach too, because this interest cannot be shown as being generated in any productive activity.

Now, if CBs are supposed to provide mainly intermediation service then the volume of their service should be closely related to the volume of bank deposits. So the CSO uses the aggregate bank deposits deflated by the wholesale price index as the volume indicator, which is applied on a benchmark estimate of the value added in CBs to obtain the constant price value-added series. However, if the CBs are also supposed to provide liquidity service then the composition of deposits (which has undergone a steady and substantial change over time) becomes important. In the following section we attempt at developing a measure of bank services after taking into account the two problems noted above - treatment of interest on consumption loans and treatment of liquidity services. This is important because this has a bearing on the growth of the volume of service.

An Alternative Approach

We propose to treat the income generated in the CB's on the same basis as that for any other enterprise. So,

$$\text{value added in CBs} = \text{value of services rendered} \text{ less } \text{value of intermediate inputs}$$

The predominant source of banks' earnings is the interest (and dividend) on loans (and investments) and we can do no better than take these receipts as the value of the corresponding services just as bank's miscellaneous direct charges represent the value of the relevant services. This approach implies that the part of CBs' interest earnings paid out to depositors is also income generated in the CBs. The CSO treats it as income generated in the business enterprises making payments to banks. When the paying (or the borrowing) units belong to the government or the household (for simplicity, henceforth we refer only to the household sector) the CSO excludes the amount (it is anomalous, since it is income generated in the process of banks' normal business, as any other interest receipt) from GDP in order to avoid the anomaly of treating consumption as a productive activity. Our approach does not involve such anomaly.

Our next question is what is CBs' intermediate input? The answer is a bit involved. A basic input used by the banks is deposits. Banks pay for this input in terms of a part of their interest receipts and free liquidity service. The sum of the imputed value of this free service and interest payments to depositors may be called the `basic' interest, in order to distinguish it from the receipts in the form of interest by banks themselves. Interest paid by borrowers may thus be viewed as the sum of a `basic' interest and an intermediation service charge. The part of this basic interest received by households represents income generated in CBs on account of a primary input. The `basic' interest

received by business enterprises (in their capacity as depositors; the receipt forming a part of the enterprise's operating surplus), on the other hand, must be treated as a payment for an intermediate input (as it is generated by a business enterprise). The other elements of banks' intermediate inputs are as usual - cost of goods and services purchased. We can, therefore, write:

$$\begin{aligned} \text{CBs' `basic' interest payments} &= \text{Imputed value of liquidity service} \\ &+ \text{actual interest payments to depositors} \quad \dots \quad (I) \end{aligned}$$

This is the cost incurred by commercial banks in mobilizing deposits from households and business enterprises. Again,

$$\text{CBs' interest receipts} = \text{`Basic' interest payments} + \text{value of intermediation service} \quad \dots \quad (II)$$

Or,

$$\begin{aligned} \text{CBs' interest receipts} &= \text{Imputed value of liquidity service} + \text{actual interest payments to depositors} \\ &+ \text{value of intermediation service (using I)} \quad \dots \\ (III) \end{aligned}$$

Clearly,

$$\begin{aligned} \text{CBs' interest receipts} - \text{actual interest payments to depositors} &= \text{Value of the intermediation} \\ \text{service by the CSO approach} &= \text{Imputed value of liquidity service} + \text{value of intermediation} \\ \text{service} &\quad \text{by} \quad \text{our} \quad \text{approach} \\ \dots &\quad (IV) \end{aligned}$$

It follows:

$$\begin{aligned} \text{Value added in CBs} &= \text{Value of services provided} (= \text{receipt of direct charges} + \text{interest receipt} + \\ &\text{imputed value of liquidity service}) - \text{value of intermediate inputs} (= \text{value of intermediate goods} \\ &\text{and services purchased} + \text{`basic' interest paid out to depositor business enterprises}) \\ &\quad \dots \\ (V) \end{aligned}$$

Or,

$$\begin{aligned} \text{Value added in CB's} &= \text{receipt of direct charges} + \text{imputed value of liquidity services} + \text{value of} \\ &\text{intermediation services} + \text{`basic' interest paid out to households} - \text{value of intermediate goods and} \\ &\text{services} \quad \dots \quad (VI) \end{aligned}$$

(relation VI is obtained by using relation II and canceling out 'basic' interest paid out to business enterprises)

Three points should be emphasized here. Firstly, as shown by relation IV, the CSO estimate of intermediation service at current prices is the same as the sum of our estimates of the liquidity and the intermediation services. However, *this equality will not hold for estimates at constant prices as the volume indicators will now be different*. Thus explicit consideration of the liquidity service will affect the estimate of CBs' services at constant prices even when we leave out the question of 'basic' interest (discussed below).

Secondly, as mentioned above, the CSO approach ignores the part of interest proceeds from consumption loans that is paid out to depositors. Our approach does not have the problem and it considers this part as income generated in the CBs and to that extent leads to an upward revision of the GDP (though practically insignificant).

Thirdly, the CSO considers the actual interest payment to depositors (almost wholly)¹¹ as income generated in business enterprises that borrowed funds. But our approach considers the 'basic' interest payments to households as income generated in CBs. This has two consequences. The *first is to inflate the value added in CBs at the expense of that of the borrowing enterprises* (apart from the effect on GDP mentioned in the previous paragraph). The second consequence is to *inflate the GDP itself to the extent of the liquidity service provided to the household sector* (which is a final service).¹²

An Alternative Measure

To implement the approach outlined above, we have to keep in view the following principles: i) Intermediation service should be related to loans and investments made by banks. ii) Liquidity service should be related to current and savings deposits only. iii) The total value of the two services is equal to the excess of CBs' receipt of interest and dividend over the amount paid out as interest on deposits (vide. relation IV). The price of the service of money (loans and investments) is rate of interest, which changes from year to year. So the estimate of value of bank services at

¹¹ Excludes the part of banks' proceeds from consumption loans that it pays out to the depositors.

¹² A significant feature of holding of bank deposits is that households prefer deposits of longer maturity. Current accounts were held largely by corporations and other institutions, while 91% of savings deposits and 70% of fixed deposits were held by households in March, 1980 (Chakraborty, 1985, p.64).

constant prices should take the rates of interest of a benchmark year and apply them to all the years.

We use the following notations:

R = total receipts from CBs' loans and investments.

f, s, c = rates of interest on fixed, savings and current deposits respectively.

D = aggregate deposit.

F, S, C = fixed, savings and current deposit respectively.

L = aggregate of loans and investments made by CBs.

m = rate of intermediation service charge.

l, q = rates of liquidity service charge on savings and current deposits respectively.

w = wholesale price index .

According to principle (iii),

R = sum of the liquidity and intermediation service charge realized by CBs + actual interest paid out on different types of deposits.

Using principles (i) and (ii),

$$R = (l*S + q*C) + m*L + (f*F + s*S + c*C) \\ = m*L + f*F + (l + s)*S + (q + c)*C \dots \quad (1)$$

Now, (f - s) and (f - c) are interest sacrificed per unit of savings and current deposits respectively.

Therefore we may write:

$$l = (f - s) \dots \quad (2)$$

$$q = (f - c) \dots \quad (3)$$

It follows from (1), (2) and (3):

$$R = m*L + f*(F + S + C) = m*L + f*D$$

$$\text{Or, } m = (R - f*D)/L \dots \quad (4)$$

Thus the total nominal value of intermediation and liquidity services, N, is:

$$N = m*L + l*S + q*C \dots \quad (5)$$

The first term on the right represents intermediation service and the rest represents liquidity service.

Clearly, all the variables on the right hand side of (5) are observable. Further, (5) can be used to obtain the real value of the intermediation and liquidity services just by using appropriate deflators for L, S and C. We note that current deposits are mainly held by business units and are treated as their working capital. So, an appropriate deflator for C should be related to the cost of production. A major part of bank loans also goes to the business sector while bank investments mainly take the form of government securities. Thus an appropriate deflator for L needs to be specially constructed

taking into consideration the composition of L. However, for want of a better alternative, we have taken the wholesale price index, w, as the deflator for both C and L. For S, on the other hand, it may seem that the implicit deflator of private final consumption in domestic markets, p, would be appropriate because this deposit is held almost wholly for transactions relating to household consumption. However, looking the other way round, for banks there is no distinction between the liquidity provided to the depositors whether they hold the savings or the current deposit. So, we take 'w' as the deflator for 'S' also. Thus the real value of intermediation and liquidity services taken together for period 't' with period '0' as base is given by:

$$N_{t0} = [m*L + q*C + I*S]/w_{t0} \quad \dots \quad (6)$$

The first term within bracket refers to the real value of intermediation service and the next two terms relate to the value of liquidity service.

Apart from the above two services, the other services rendered by CBs are directly charged for. This category includes a number of services of different kinds, each accounting for a small proportion of CBs' aggregate receipts. Rather than seeking a separate deflator for each kind of service, for simplicity, we use the wholesale price index, w, as the deflator for earnings from these services.

The only other aspect of value added in commercial banks relates to the 'basic' interest paid to households. It may be thought, as interest is the price of the use of money, 'basic' interest at constant prices should be related to the real volume of deposits and we could obtain that by carrying forward the base year 'basic' interest by the real value of D, i.e., D/w. That is tantamount to double deflation both for changes in the rate of interest and for inflation. However, interest is treated as a factor payment in national income accounting. So, the real value of payment to the factor, money, should incorporate changes in the productivity of the factor just as real wage incorporates changes in productivity of labour. We can probably do no better than take changes in the 'basic' interest rate¹³ as reflecting changes in the productivity of money. Therefore, estimates of 'basic interest' at constant prices should not be based on double deflation, it should incorporate changes in interest rate and discount for inflation only. Our estimates presented in table-12 are rough approximations keeping the above points in mind.

¹³ This is nothing but the average rate of interest on fixed deposits.

Here we recall that the CSO does not treat the `basic' interest as generated in the CB's. So, our estimates of real value added **excluding** `basic' interest might be compared to the corresponding CSO estimates. *For consistency with CSO estimates, we will henceforth refer to the sum of liquidity and the intermediation services as bank services* and we will refer to `basic' interest separately where necessary. Since the CSO obtains its estimates by blowing up a benchmark estimate by the aggregate bank deposits deflated by the wholesale price index, a comparison with our estimates will give an idea about the effect of the steady change in the composition of bank deposits over time on the growth of liquidity service and its relative importance vis-à-vis intermediation services rendered by CBs.

Estimates

Table-12 shows the changes in the composition of bank deposits over the last four and a half decades. We observe that the share of current deposit in total has declined drastically from 70% in 1950 to 44% in 1969, the year of nationalization of 14 major banks, and further to just 15% in 1996. The share of savings deposit improved from just 15% in 1950 to 26% in 1969 and then declined to less than 20% in 1996. The corresponding figures for fixed deposit improved steadily from 15% to 30% and further to 65%. Obviously, such enormous changes reduce the relative weight of liquidity service in aggregate bank services.

Year	Current	Savings	Fixed	Total
1950	37	8	8	53
1955	47	12	16	75
1960	47	14	34	95
1965	50	232	41	114
1969	61	36	41	138
1970	68	39	46	153
1975	87	56	75	218
1980	78	109	193	380
1985	115	182	335	632
1991	132	244	500	876
1996	217	273	926	1416

Source: RBI, Statistical Tables relating to Banks in India (different issues). Conversion to 1980-81 prices is based on WPI. Figures for 1996 have been adjusted on the basis of GOI, Economic Survey, 1996-97.

Table: 13 Commercial Bank Services						
At constant (1980-81) prices, unit: Rs. crores						
Year	$\$(I*S + q*C)$	$\$ m*L$	N_t^{1980}	Basic int. to hhs. [@]	Non- int. V.A. [#]	V.A.* (CSO)
1950	283	185	468	215	381	204
1955	365	262	627	310	509	292
1960	371	332	703	415	571	383
1965	419	399	818	525	672	489
1969	535	483	1018	630	808	642
1970	593	535	1128	695	895	767
1975	777	763	1540	1091	1257	1034
1980	873	1330	2203	1903	1833	1833
1985	1351	2212	3563	3290	2860	2989
1991	1656	3066	4722	4625	3840	4998
1996	2314	5245	7559	7152	6146	7727

Source: CSO estimates are obtained from different issues of National Accounts Statistics. Other estimates are calculated on the basis of procedure detailed above.

Notes:

$\$ m*L$ = value of intermediation service. $\$(I*S + q*C)$ = value of liquidity service. m, l and q have been obtained on the basis of 1980 interest rates.

@ 80% of banks' payment of interest on deposits is taken as going to households. Figures have been deflated for changes in rates of interest as well as prices. hhs.= households, int.= interest.

This excludes basic-interest paid out to households. The non-interest value added for 1980 has been equated to the CSO estimate (vide equation iv), thus yielding an adjustment factor 0.8287 which has been applied to all the years. V.A.= Value added.

* CSO estimates prior to 1980-81 are at prices of 1970-71. These have been converted to the base of 1980-81 by using a conversion factor 2.84 representing price index.

The determination of service charges is given by equations 1 through 5. We have taken the average rate of interest on fixed deposits, f, for the benchmark year 1980 to be 7%. Rates of interest on savings and current deposits, s and c, for the year were 4% and nil respectively. Rate of intermediation service charge, m, is found to be 3.5%. We have arrived at our estimates of constant price value-added in CB's (including banking department of the RBI) using the above figures. The estimates are presented in table-13. Our estimates of non-interest real value added are comparable with the CSO estimates of real value added in commercial banks. *The difference between the two sets of estimates, therefore, should be attributable mainly to the consideration of liquidity service and the adoption of double deflation (for price and rate of interest) in our approach.*

Comparing our estimates of non-interest real value added with the corresponding CSO estimates (table-14) we find that the CSO projects a picture of faster growth of bank services. This is

largely understandable in terms of the composition of deposits. The sharp fall in the share of current deposits in aggregate deposits of commercial banks and the sharp rise of the share of fixed deposits, as mentioned above, means a sharp decline in the share of liquidity service in bank services¹⁴. This has a depressing effect on the growth of bank services as per our approach. But the effect of the change in composition is not reflected in the CSO approach.

Growth rate calculations show that value added by the CSO measure grew faster (uniformly over the whole period) by two percent vis-à-vis comparable aggregate (value added in bank services excluding 'basic' interest) by our approach. It may be noted, however, that the jump in the rate of growth of value added in CB's after bank nationalization in 1969 is only marginally smaller for our measure compared to the CSO measure. *As expected from the change in the composition of bank deposits, the rate of growth of liquidity service is found to be the slowest among all the quantities mentioned above.* As the official measure ignores this service the rate of growth of bank service at constant prices by this approach is higher than that found by our approach. The above discussion makes one thing clear. While aggregate financial services increased at a very high rate, the liquidity service has expanded only at a moderate rate, leading to a precipitate fall in its share in the aggregate. So, the rapid growth of commercial bank services in India is predominantly the effect of the growth of other sectors (mainly industry) of the economy using financial services as an intermediate input.

The rapid growth of the overall financial sector is shown in table-22 in section V. Our adjustments show larger share of finance. This is due to the inclusion of 'basic interest', which is considered as generated in the borrowing sector (mainly industry) by the CSO. This, however, does not make any difference so far as income generated in material products sector is concerned, as financial services are material services for all practical purposes (vide section VI). The rapid development of the financial sector is also portrayed in the steady rise in the financial ratios. Financial interrelation ratio, defined as the ratio of increase in the stock of financial claims to net capital formation, increased four-fold, from 0.63 to 2.5, over the four decades to 1990. Over the same period the intermediation ratio, defined as the ratio of secondary issues to total issues, increased from 0.27 to 0.45 (Rangarajan and Jadhav, 1992).

¹⁴ *The share of liquidity service in aggregate liquidity and intermediate services has declined from 60.5% in 1950 to 30.4% in 1996.*

IV

Public Administrative Services

Public Administrative Services (PAS) are constituted of a host of different activities at different levels of government, i.e., the central government, state governments, municipal corporations, different district and local boards and panchayati raj institutions. Services involved are general government administration, defence, government economic administration, social services like education and health, and other welfare services. The first three categories are clubbed together to form what may be called pure government service; no close substitute being available in the market. This category is shown in the National Accounts Statistics as Public Administration and Defence (PA&D). But some other services rendered by the government administrative departments - mainly education and health services - are also provided by the private sector. Expenditure on the category PA&D accounts for more than two-thirds of total expenditure on PAS up to early 90's. Income originating in PA&D expressed as a proportion of Gross Domestic Product at factor cost (at current prices) increased steadily from just 3 percent in 1950-51 to 5.7 percent in 1990-91; it then declined somewhat to 5.3 percent in 1996-97 (Table-14).

Table-15 shows that over the last four and a half decades Government consumption of administrative services as a proportion of GDP at current market prices increased steadily, from 5.9 in 1950-51 to 10.9 percent in 1989-90 (col.7); but then showed a significant decline in the first half of the 90's. The share of PA&D declined from roughly three-fourths to less than two-thirds of government administrative expenditure (col.8) over the four and a half decades. The decline seems to be striking since mid-seventies, when the share of expenditure on social services increased markedly. We may explain here that community and social services mentioned in the table includes education, 'medical and health services', 'housing and other community amenities', and other miscellaneous services. The cost of a service is the sum of employees' compensation (value-added) and cost of material and service (intermediate) inputs, with value-added constituting the lion's share of the cost.

Table 14: Value-added in PA&D as percentage of GDP at factor cost (current prices)			
Year	Proportion	Year	Proportion
1950-51	3.0	1975-76	4.9

1955-56	3.7	1980-81	4.7
1960-61	3.7	1985-86	5.4
1965-66	4.3	1990-91	5.7
1970-71	4.4	1996-97	5.3

Source: i) CSO (1998), *National Accounts Statistics*. ii) EPW Research Foundation (1997), *table3B*.

In table-14 we use current price estimates of value added because the concept of 'volume' of public service is particularly tricky. The Central Statistical Organization (CSO) provides constant price estimates of *value added* in PA&D. These estimates are obtained after adjusting the compensation of employees for rises in cost of living. *The implicit assumption is that any real increment in employees' compensation is due to improvement in productivity*. Clearly, this is not a very happy assumption. An alternative and more appropriate approach seems to be suggested by the hypothesis of the 'rising-cost-of-services'.

The hypothesis is that in a progressive economy the relative cost of services increases over time (Baumol, 1967). So, even if the real amount (in some sense) of public services rendered grows at a slower rate than the production of material goods, the share of services in national income may increase. Economic activities, according to this approach, can be divided into two categories (i) the technologically progressive activities where productivity per man-hour increases very rapidly over time, and (ii) other activities where productivity increments are relatively modest. The basic source of distinction lies in the role played by labour in the activities. In one case labour is only an incidental requirement for the attainment of the final product, while in the other labour, for all practical purposes, is itself the end product. Material production, particularly manufacturing, encompasses the most obvious examples of technologically progressive activities. Teaching, live performances, etc., are examples of the latter category. The difference between the two cases in respect of productivity improvements should not however, be overemphasized. Technology in the rendering of services also has been undergoing changes leading to substantial improvements in productivity of workers. Take, for example, the case of financial services. Nevertheless, the distinction between the two categories may not be out of place and it may provide an insight into the mechanism of changes in the share of PAS in national income.

Table 15: GDP, PA&D and PAS (current prices)						
Unit: Rs. `00 crores						
Year	GDP (market prices)	Expenditure on			Percentage	
		PA&D	PAS less PA&D	PAS	(3) (2)	(5) (2)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950-1	93.66	4.1	1.4	5.5	4.4	5.9	74.5
1955-6	102.58	5.0	1.9	6.9	4.9	6.7	72.3
1960-1	162.01	7.9	2.9	10.3	4.9	6.4	76.9
1965-6	261.45	16.3	5.8	22.1	6.2	8.5	73.8
1970-1	431.63	27.1	9.7	36.8	6.3	8.5	73.6
1975-6	787.61	50.7	19.3	70.0	6.4	8.9	72.4
1980-1	1360.13	83.3	39.9	123.2	6.1	9.1	67.6
1985-6	2619.20	183.9	88.4	272.3	7.0	10.4	67.5
1989-0	4568.21	342.4	157.0	499.4	7.5	10.9	68.6
1993-4	8010.32	553.6	272.8	826.4	6.9	10.3	67.0
1995-6	11189.6	681.0	402.0	1083.0	6.1	9.7	62.9

* Excludes relief on natural calamities.

Source: (i) Kumar and Bhatnagar (1982), *Journal of Income and Wealth*, 6(1). (ii) CSO (different issues), *National Accounts Statistics*.

Given the distinction between the technologically progressive and non-progressive activities, the thesis can be stated in simple terms. "If productivity per man-hour rises cumulatively in one sector relative to its growth elsewhere in the economy, while wages rise commensurately in all areas, then the relative costs in the non-progressive sector must inevitably rise, and these costs will rise cumulatively and without limit. Because, while productivity increases in the progressive sector will serve as an offset to rising wages in the sector, this effect must be smaller in the non-progressive sector" (Baumol, 1967, p. 419-20.). Further, if there is only a limited possibility of substitution both in production and in consumption of these services, their share in GDP may well increase even with a modest or no growth of the volume (in some sense) of the services rendered.

Verification of the rising-cost hypothesis

We have noted that according to this hypothesis wage increments in the technologically progressive sector is generally offset by productivity gains. Thus productivity improvements offset to a great extent the inflationary potential of wage hikes. The offset, however, does not work in the non-progressive sector where wage of the worker tend to increase at about the same rate as that in manufacturing. As a result the relative price of products of the non-progressive sector, particularly Government services, tends to rise.

Table-16 below presents the indices of per-employee gross value added (GVA) at constant prices and real emoluments for the manufacturing and the public services (practically the same as PAS)

sectors. Here we may note briefly the method of computation of the indices. Figures for per capita real GVA and real emoluments for 1960-61 and 1970-71 refer to selected industries accounting for 90 percent of the value added in the registered manufacturing sector as provided in the CSO Bulletin (1984). But figures for later years are based on NAS data for the whole of the manufacturing sector. Adjustments, sometimes based on partial estimates, have been made to make data for different years comparable. Data on emoluments are taken from NAS break-up of value added. Relevant data for public services are current price values deflated by cost of living indices for urban non-manual workers. For such services value added is practically the same as remuneration to workers. Data on employment are based on Labour Bureau (1983) and Agarwal et al (1996). Data culled from so many different sources are naturally not always strictly comparable. This necessitated cross checking and adjustments. With all the precautions taken, we feel that the trends portrayed in table -16 should not be terribly misleading.

Let us compare per capita GVA at constant prices in the manufacturing sector with real remuneration per employee in the sector. In India the index of constant price value added per employee in the manufacturing sector increases to 131 in 1970-71 (1960-61=100) and then to 144 in 1981-82 (not a remarkable improvement) and further to 263 in 1990-91. The table shows that real emoluments per employee in the same sector increased to 118 in 1970-71 (with 1960-61=100), then to 142 in 1981-82 and further to 228 in 1990-91. Thus during the three decades wage increments in the manufacturing sector may be viewed to have roughly corresponded with productivity increments. As for real emoluments per employee in public services, it seems that the increments followed those in manufacturing rather closely probably with the exception of a stretch in the mid 70's.¹⁵ These observations are in accord with the rising-cost hypothesis. Thus there is a case for the presumption that, in general, the cost of public services in India increased relatively to the cost of manufacturing products; and this was particularly so during the 80's.

Table 16: Index of Gross Value Added at Constant Prices and Real Emoluments per Employee		
Year	GVA/Employee in Manufacturing	Real Emoluments / Employee

¹⁵Sivasubramaniam (1998) also presents index of gross value-added by sectors. His sources of data are different from ours. So, the estimates are also somewhat different. Nevertheless, it is interesting to note that the order of magnitude of the difference between real emoluments (or, per-capita value added) in manufacturing and PA&D is the same for our and Sivasubramaniam's estimates both in 1970-71 and 1990-91, though it was not so for 1980-81.

		Manufacturing	Pub. Services
1960-61	100	100	100
1970-71	131	118	108
1976-77	132	127	91
1981-82	144	142	128
1985-86	191	174	155
1990-91	263	228	203

Source: Labour Bureau (1983), *Pocket Book of Labour Statistics*; CSO (1984), *Bulletin no. ISD/9*; CSO (1993), *Statistical Pocket Book*; Agarwal and Varma (1996), *India: Economic Information Yearbook*

On the basis of the above evidence we can say that the inflation of value added per worker in PA&D (and also PAS) has two components. First, increment of cost of living leads to wage hikes. Second, increment of real wage in the manufacturing sector induces similar increments in the public services sector too. Deflation by cost of living index offsets the first component, but not the second. *This means that the 'constant price' estimates arrived at by simple deflation cannot be taken as indices of the services actually rendered.*

Expansion of the 'volume' of service

Many commentators have expressed their misgivings regarding the rapid growth of the sector PA&D. It is appropriately pointed out that the growth of this sector is neither *necessarily* related to the demands of the development process, nor is it related to the need for improvement in overall efficiency in a developing economy. It should, therefore, be interesting to consider what the rapid growth of public consumption signifies in terms of the growth of the 'volume'¹⁶ of public services. In the course of our discussion of the 'rising-cost-of-services' hypothesis it has been indicated that expansion of actual services was slower as the relative cost of these services increased, particularly after 1980-81 when real remuneration of employees in PAS increased substantially. Real remuneration to employees in public administrative departments (PAS) reflects, at least partly, the productivity increments in the manufacturing sector. Whether or not productivity of employees in PAS did increase commensurately with that of manufacturing workers is hard to prove. There is widespread presumption that it did not. *Under the presumption of no productivity improvement in the activities concerned the CSO constant price estimates are*

overestimates of the actual ('volume' of) services rendered. It should, therefore, be interesting to consider alternative estimates of 'volume' of services obtained by deflating the CSO constant price estimates by the index of real remuneration of employees of government administration (table-16). The results are given in table-17.

Table-17 presents the official estimates (at 1980-81 prices) of value added and also our adjustments of those estimates to obtain the 'volume' of services rendered by PA&D as well as the whole of PAS. A glance at the table reveals that the trend in the growth of the 'volume' of services is much flatter than that for the constant price official estimate. The reason for the difference has already been discussed above. But the findings look very striking when expressed as a ratio to NDP. *While the official estimates show a steady growth of the ratio from 3.3 percent in 1960-61 to 8.3 percent in 1990-91 and then a fall to 7.9 percent in 1995-96, the volume index as a ratio to constant-price NDP shows a steady (though slower) growth only up to 1980-81. After 1980-81 the ratio shows a steady and considerable decline. Thus, as a ratio to NDP at constant prices, the 'volume' index of public services increased steadily for 4.2 percent to 7.2 percent between 1950-51 and 1980-81; it then declined steadily to 4.9 percent in 1995-96.* The above analysis suggests that the rapid relative growth (vis-à-vis NDP) in the volume of public services during the two decades before 1980 has almost been nullified by the relative decline since then. *This is true despite the rapid expansion of education and health services, during the last two decades. So, any apprehension that the sector PAS, and particularly PA&D, are expanding too fast may not be well founded.* Furthermore, cost escalation in the sector, though very rapid, is probably inevitable to a great extent. In fact, non-escalation of cost of these services may probably be the characteristic of an economy with a stagnant industry.

Table 17: Official Constant-price (1980-81) Estimates of Value Added and Our Adjustments for Volume Indices: PAS and PA&D
(Absolute values and ratio to NDP at factor cost)

Year	PA&D (CSO)	PA&D (Own)	PAS less PA&D (CSO)	PAS (Own)	PAS as ratio to NDP (CSO)	PAS as ratio to NDP (Own)
1950-51	9.2	12.8	NA	NA	NA	NA
1955-56	10.7	14.3	NA	NA	NA	NA

¹⁶ We have not defined the concept 'volume' of public services. It is indeed a tricky concept and one can think of different alternatives. As an example, one can try to measure it by taking different indices of actual services, though this option is not free from serious problems.

1960-61	14.9	19.1	4.8	25.2	3.3	4.2
1965-66	22.8	28.2	8.0	38.1	4.6	5.7
1970-71	31.8	37.8	13.4	53.7	5.4	6.4
1975-76	39.9	45.9	16.5	64.8	5.9	6.7
1980-81	53.1	53.1	26.3	79.4	7.2	7.2
1985-86	72.8	60.6	35.8	90.4	7.7	6.4
1990-91	103.3	65.4	53.7	99.4	8.3	5.4
1995-96	130.3	78.0	63.1	115.8	7.9	4.9

**Estimates for PA&D and PAS use interpolations on indices of real emoluments given in table-6 to obtain missing values. Clearly, these estimates are only indicative, not very precise.*

NA = not available.

Source: NAS (1988, 1992a, 1992b, 1998); Datta (2001).

Growth of Components of Public Administrative Services

We now break up public services into its components - defence, general administration, economic services and other social and community services that include education, health and other miscellaneous services. Table-18 presents elasticities of components with respect to total expenditure in PAS for the first two and a half decades, as well as for the whole period of four and a half decades. It is seen that defence expenditure had elasticity decidedly above one for the first period but not so for the extended period. General administration had elasticity very close to one for both the periods. Economic services had elasticities decidedly below one for both the periods, but smaller during the first part compared to the whole period. Thus, the decline in the share of PA&D in total public consumption has been caused mainly by the decline in the share of economic services. Elasticities for education and health services were very close to one for the first period but decidedly above one for the extended period. This means that these services grew relatively during the last two decades. Thus we find that the pattern of allocation is a story of relatively rising defence expenditure at the cost of economic services in the first two and a half decades. During this period the rest of the components of PAS maintained their shares. But during the next two decades education and health services improved their shares somewhat at the cost of more or less all the components of PA&D, but particularly economic services. In spite of the rather rapid decline in the share of economic services in PAS, the elasticity of this category of services with respect to GDP was greater than one over the whole period (table-19). This is

explained by elasticity of the overall expenditure on PAS with respect to GDP being significantly greater than one.

Period	Defence	General	Economic	Education	Health & Misc.
1950-95	0.998	0.991	0.921	1.042	1.066
1950-75	1.070	0.997	0.861	1.008	0.999

Source: *Datta, 2001*

Elasticities obtained from double-log regression. All the coefficients are significant at 1% level.

Period	Defence	General	Economic	Education	Health & Misc.	PAS
1950-95	1.114	1.108	1.030	1.165	1.193	1.118

Source: *Datta, 2001*

Elasticities obtained from double-log regression. All the coefficients are significant at 1% level.

V

Rest of the tertiary sector

The remaining services of the tertiary sector are categorized in the official statistics as 'dwellings real estate and business services' (DRB) and 'other services. Net value added in the sub-sector DRB consists almost entirely of rental income, both actual and imputed, from dwellings (forming 97 percent of value added in the sub-sector in 1980-81, vide. CSO, 1989; P.151). It is important to note that labour plays practically no direct role in the rendering of service of dwellings while for many other services of the tertiary sector labour, so to say, itself constitutes the service. Naturally, unlike PAS, constant price estimates of rental income from dwellings are based on physical indices. These indices are the number of dwelling units obtained from Population Censuses separately for rural and urban areas (CSO, 1989b). A base year estimate of rental income (obtained from national sample survey) is moved forward by these indices to obtain estimates at constant prices. Estimates of value-added in business services, being a very small proportion of the aggregate value added in the sub-sector DRB, do not affect the overall estimate much.

This leaves us with the category 'other services'. In the course of our analysis of the growth of Public Administrative Services (PAS) we have mentioned that education, and 'health and medical

services' are areas where private sector too operates parallelly with the government. National Accounts Statistics (NAS) classifies these activities, both private and public, in the residual category 'Other Services' along with miscellaneous services of various descriptions while pure government administrative activities - like defence, general administration and government economic services - are classified, as mentioned in the last chapter, as Public Administration and Defence (PA&D).

According to official estimates, the share of the sub-sector, 'other services', in income originating in the tertiary sector declined sharply from 25.7 percent to 15.8 percent between 1950-51 and 1995-96. It is interesting to note that the combined share of education and health in 'other services' increased very rapidly from 23 percent to 75 percent over the same period (table-20). This means that the share of the two services in NDP in fact increased by about 100 percent over the period in spite of the sharp fall in the share of 'other services'; while the corresponding share of the remaining medley of various services of the sub-sector dropped precipitately.¹⁷

Revision and Comparison

The logic of our revision of CSO constant-price estimates of PAS is equally valid for similar services rendered by the private sector (e.g., education and health services of the private sector). But this comment is not valid for other sub-sectors of the tertiary sector, because the real-value-added estimates for the sub-sectors distributive trade and DRB are based on physical indicators (mentioned in relevant sections). The same is true, in a way, of estimates of commercial bank services (section III) and some miscellaneous services.

Table-20: Income Originating in Sub-sectors of the Tertiary Sector (at 1980-81 prices, Unit: Rs`00 crores) CSO Estimates						
Year	Trade etc.	Finance	PA&D	DRB	Other Services	Tertiary Sector
1950-51	36.0	4.9	9.2	24.9	25.9	100.9

¹⁷ We have noted that expenditure on education and health services under government administration have increased much faster than GDP. As a result the share of government in education and health services increased from 33 percent in 1960-61 to 56 percent in 1995-96. If we exclude the part of education and health services that is under government administration then the share of 'other services' in aggregate value added in the tertiary sector has dropped from about 20 percent in 1960-61 to 10 percent in 1995-96. This decline is, obviously, more sharp than that of the parent category 'other services'.

1955-56	45.4	7.3	10.7	28.5	29.7	121.6
1960-61	60.0	9.6	14.9	32.4	34.7	151.8
1965-66	78.0	13.0	22.8	37.8	42.4	193.9
1970-71	95.6	17.8	31.8	43.1	50.6	238.9
1975-76	115.9	22.7	39.9	51.0	58.6	288.0
1980-81	143.2	33.4	53.1	59.2	67.8	356.7
1985-86	190.9	57.2	72.8	71.9	84.7	477.4
1990-91	257.8	108.7	103.3	86.4	116.8	673.0
1996-97	420.9	219.6	130.3	107.3	161.0	1039.1

Source: NAS, different issues.

As discussed in section III, our revaluation of the product of finance relates to fresh estimates of intermediation and liquidity services rendered by commercial banks and inclusion in banks' output the 'primary' interest paid to households. The 'primary' interest is equivalent to the imputed value of liquidity service to households plus the interest actually paid out to them. The latter part is treated by CSO as being generated mostly in industry. Therefore, its inclusion in value-added in banks reduces that in industry by an equivalent amount. Thus our revision of the CSO estimates of value added in commercial banks should raise the NDP estimate not by the whole amount of the 'basic' interest but only by roughly the value of liquidity service to households. But as this service constitutes a very small proportion of NDP over the period concerned, for simplicity of calculations we ignore the requisite upward revision. However, our estimates of intermediation and liquidity services rendered by commercial banks are different from the corresponding CSO estimates and this is reflected in our revision of value added in Finance (table-21).

Our revised estimates are given in table-21. The revisions concern: (i) finance, (ii) PA&D and (iii) part of 'other services' provided under public administration. The official estimate of volume of services for most of the remaining part of the category 'other services' is arrived at by moving forward the base year estimate with the estimate of the number of persons working in different activities. This procedure assumes that the volume of service is proportional to the number of persons involved; i.e., productivity of workers is constant, as we have assumed in our adjustments of CSO estimates.

Table-21: Value-Added in Sub-sectors of the Tertiary Sector (at 1980-81)

prices, Unit: Rs`00 crores) <i>Our Adjustments</i> [*]						
Year	Finance	PA&D	Other Services	Tertiary	NDP (factor cost)	
					CSO	Own
1950-51	8.7	12.8	29.0	111.5	406.8	414.8
1955-56	12.6	14.3	32.6	133.2	483.4	492.2
1960-61	15.6	19.1	37.5	164.8	589.7	597.9
1965-66	20.1	28.2	45.3	209.4	665.8	675.2
1970-71	26.1	37.8	54.2	256.9	831.7	842.6
1975-76	35.9	45.9	63.1	311.8	957.4	978.1
1980-81	52.5	53.1	67.8	375.7	1103.4	1103.4
1985-86	88.8	60.6	78.5	490.8	1402.2	1408.5
1990-91	139.0	65.4	88.9	637.5	1902.2	1866.4
1995-96	251.0	78.0	106.0	926.8	2451.0	2361.0

It can be checked from tables 20 and 21 that the tertiary sector's contribution to NDP has steadily increased over time. *As per CSO estimates the increase was from about 25 percent in 1950-51 to 39 percent in 1995-96.* Our adjustments of the CSO estimates do not make the picture in 1995-96 much different in this respect. The upward revision due to financial services is more than counterbalanced by downward corrections due to PA&D and 'other services', while NDP (at constant prices) declines due to downward revision of PA&D and 'other services'. *The result is that the share of the tertiary sector in NDP in 1995-96 is unchanged. During the initial years, however, the contribution of the tertiary sector is somewhat higher (about 27 percent in 1950-51) in the adjusted estimates compared to the official estimates.*

Table-22 gives the percentage distribution of value-added (at constant prices) in the sub-sectors of the tertiary sector. The table gives both the official estimates and our adjustments to those estimates based on the arguments presented above. We find that distributive trade has been the largest sub-sector of the tertiary sector throughout the period under study. According to the official estimates the share increased for the first fifteen years and then maintained a constant (two-fifths) share of the value-added in the tertiary sector. However, our adjustment shows the share to be rising all through with the exception of the ten years from 1965-66 to 1975-76 (diagram-2)

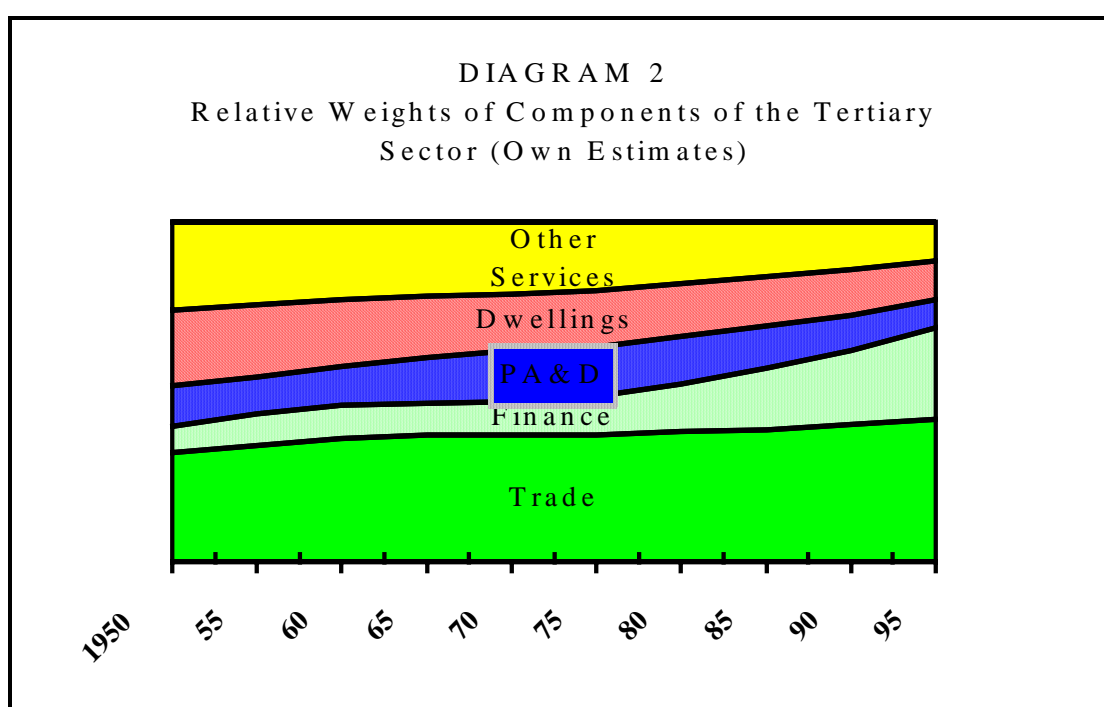
Table-22: NDP Originating in Sub-Sectors of the Tertiary Sector					
(at 1980-81 prices, percentage distribution)					
<i>CSO estimates and our adjustments (in parentheses)</i>					
Year	Trade etc.	Finance	PA&D	DRB	Other Services
1950-51	35.7 (32.3)	4.8 (7.8)	9.1 (11.5)	24.7 (22.3)	25.7 (26.0)
1955-56	37.3 (34.1)	6.0 (9.5)	8.8 (10.7)	23.5 (21.4)	24.4 (24.5)
1960-61	39.6 (36.4)	6.3 (9.5)	9.8 (11.6)	21.4 (19.7)	22.9 (22.8)
1965-66	40.2 (37.2)	6.7 (9.6)	11.8 (13.5)	19.5 (18.1)	21.8 (21.6)
1970-71	40.0 (37.2)	7.5 (10.2)	13.3 (14.7)	18.1 (216.8)	21.2 (21.1)
1975-76	40.2 (37.2)	7.9 (11.5)	13.9 (14.7)	17.7 (16.4)	20.3 (20.2)
1980-81	40.2 (38.1)	9.4 (14.0)	14.9 (14.1)	16.6 (15.8)	19.0 (18.0)
1985-86	40.0 (38.9)	12.0 (18.1)	15.2 (12.3)	15.1 (14.6)	17.7 (16.0)
1990-91	38.3 (40.4)	16.2 (21.8)	15.4 (10.3)	12.8 (13.6)	17.4 (13.9)
1995-96	40.3 (41.9)	20.5 (27.1)	12.7 (8.4)	10.7 (11.1)	15.8 (11.4)

Source: *Tables 20 and 21*

All the other sub-sectors varied in relative importance over the period under study. In the beginning (1950-51) dwellings, etc. (DRB) and 'other services' each contributed about one-fourth of the value-added in the tertiary sector. In the end (1995-96), however, the two sub-sectors together contributed a little more than a fourth of the value-added. The CSO estimate, though, shows the 'other services' sub-sector to be a bit bigger. The reason for the disparity between the two estimates has been discussed above.

The fastest growing sub-sector has been finance (including insurance). According to CSO estimates the share of this sub-sector increased phenomenally from just 4.8 percent to 20.5 percent over the period. Our estimate also shows the growth to be of almost of the same order of

magnitude - from 7.8 percent to 27.1 percent. Public Administration and Defence presents a very interesting picture. According to CSO estimates its relative importance increased considerably - from 9 percent to 15 percent - over the first four decades under study. Only during the last quinquennium the share came down to 12.7 percent. However, after adjustment for the rise in real remuneration to employees (as discussed in the last section), it seems that the 'volume of services' of the sub-sector increased during the first two decades only. The rising trend stopped there. From the mid-70's the constant price share started declining rather rapidly and came down from 14.7 percent in 1975-76 to 8.3 percent in 1995-96.



VI

Tertiary Sector and Material Production

It should now be of interest to check what has been the significance of the growth of the tertiary sector of the Indian economy on the relative weights of material and non-material production! The material products system (MPS) divides activities into two categories - material and non-material. NMP takes into account only the activities in the material sphere, ranging from extraction of material resources to their processing and distribution. Thus NMP excludes a number of activities included in NDP. The non-material sphere consists of the following branches: Housing, commercial services and public utilities; education, culture and art; health services, social securities and sports; science and scientific services; finance, credit and

insurance; general government and other branches of the non-material sphere (U.N., 1971). Services like goods transport and distributive trade are considered material services and are included in NMP. The basic idea seems to be that services embodied in material goods are material services and they should form part of NMP.

The classification of 'finance, credit and insurance' in the non-material sphere, however, violates the above norm as these costs are mostly embodied in prices of material goods. Nevertheless, the estimate of NMP is not much affected by this practice. Disregard of the services of this category only shows the surplus originating in the production of material goods to be higher to the extent the services formed inputs in the process. To that extent the cost of the services are indirectly included in NMP though the particular group of services is not explicitly shown as contribution to material production. Therefore, it is clear that compared to NDP the concept of NMP is limited to the extent that it excludes only a part of the value added in different services.

We present in table-23 estimates of NMP for the Indian economy since 1950¹⁸. We observe from table-23 that NMP (our estimate based on CSO data), as a share of GDP (CSO estimate) at factor cost, has somewhat increased over the period under study. The growth of the tertiary sector could not reverse the process. In fact, if our revised estimates were made the basis for calculation of NMP, the relative share of NMP would be a bit higher, particularly over the last two decades, mainly due to downward revision of the contribution of PA&D. On the basis of our analysis in the present paper, we may, therefore, conclude that the growth of the tertiary sector of the Indian economy over the period concerned has been characterized by the rapid growth of services connected with material production, and the cause of this growth is embedded in material production itself. 'Community, social and personal services', including public administration, has not expanded as fast so far as the volume of services in some sense is concerned. However, if we

¹⁸ The disaggregated tables of GDP as given in the Central Statistical Organisation publications have been used to derive these estimates. Our estimates do not exactly conform to the UN guideline for obtaining NMP from SNA data. This is because the breakdown of activities in the CSO data is not detailed enough for the purpose. The most important source of divergence of our estimates from the U.N. guidelines (U.N., 1971) is the inclusion of non-business-related passenger transport in NMP. Other sources of divergence are failures to determine the proportions, for communication and financial services, which cannot be treated as inputs to material production. The whole of these services have been included in our estimates. Further, though the services of hotels belong to the non-material sphere, these have been included in our estimate because of non-availability of sufficient break-up. Thus our estimates have an upward bias compared to those one would obtain from strict observance of the U.N. guideline. Our guess is that the extent of overestimation may range from two to four percent.

look at the expenditure on these 'non-material' services, they too have expanded fast. Even then, the expansion was not fast enough to reverse the favourable trend of relative weight of NMP.

Table: 23 GDP AND NMP, at factor cost (current prices)

	GDP	NMP	nmp/gdp		GDP	NMP	nmp/gdp%
1950-	90	73	81.8	1975-	712	587	82.5
51-52	95	78	81.8	76-77	765	629	82.2
52-53	94	75	80.6	77-78	873	725	83.0
53-54	102	83	81.1	78-79	939	778	82.8
54-55	96	75	78.8	79-80	1024	846	82.6
1955-	97	76	77.8	1980-	1224	1022	83.5
56-57	116	93	80.2	81-82	1432	1205	84.1
57-58	119	94	79.5	82-83	1594	1335	83.7
58-59	133	107	80.4	83-84	1867	1575	84.3
59-60	139	111	79.8	84-85	2085	1754	84.1
1960-	153	122	79.7	1985-	2338	1965	84.0
61-62	161	129	79.9	86-87	2600	2169	83.4
62-63	172	136	79.1	87-88	2949	2458	83.3
63-64	197	157	80.0	88-89	3527	2967	84.1
64-65	230	186	81.1	89-90	4086	3445	84.
1965-	241	193	80.4	1990-	4778	4049	84.7
66-67	274	222	81.1	91-92	5527	4681	84.7
67-68	322	265	82.2	92-93	6308	5344	84.7
68-69	339	278	82.0	93-94	7319	6244	85.3
69-70	373	307	82.3	94-95	8583	7364	85.8
1970-	397	325	81.9	1995-	9858	8454	85.8
71-72	422	343	81.4	96-97	11200	9575	85.5
72-73	465	379	81.6	'%' Shows NMP as percentage of			
73-74	570	475	83.4				
74-75	670	558	83.2				

BIBLIOGRAPHY

Agarwal, A. N. and Varma, H. O. (1996), *India: Economic Information Yearbook*, National Publishing House, New Delhi.

Baumol, W. J. (1967), "Microeconomics of Unbalanced Growth: The Anatomy of Urban Crisis", *American Economic Review*, vol.57.

Central Statistical Organisation (1984), *Bulletin no. ISD/9*, New Delhi.

Central Statistical Organisation (1988), *National Accounts Statistics*, New Delhi.

Central Statistical Organisation (1989a), *National Accounts Statistics*, New Delhi.

Central Statistical Organisation (1989c), *National Accounts Statistics: Sources and Methods*, New Delhi.

Central Statistical Organisation (1989b), *National Accounts Statistics*, 1980-81 to 1988-89.

Central Statistical Organisation (1989d), *Input-Output Transactions Table: 1978-79*, New Delhi.

Central Statistical Organisation (1993), *Statistical Pocket Book*, New Delhi.

Central Statistical Organisation (1998), *National Accounts Statistics*, New Delhi.

Chakraborty, S. and others (1985), *Report of the Committee to Review the Working of the Monetary System*, RBI, Bombay.

Chanon, D.F.(1978), *The Service Industries: Strategy, Structure and Financial Performance*, MacMillan, London.

Clark, C. (1940), *Conditions of Economic Progress*, 3rd. edition, Macmillan, 1957, London.

Datta, M. (1991), "A Measure of Commercial Bank's Share in GDP: Indian Economy- 1950-51 to 1983-84", *Journal of Income and Wealth*, vol.12, no. 2.

Datta, M. (1998), "An Analysis of the Growth of Distributive Trade in India", *Arthavijnana*, Vol.11, No.3.

Datta, M (2001), *The Significance and Growth of the Tertiary Sector : Indian Economy – 1950 to 1997*, NBC, New Delhi.

Directorate of Economics and Statistics, (different years), *Indian Agriculture in Brief*, New Delhi.

EPW Research Foundation (1997), *National Accounts Statistics of India : 1950-51 to 1996-96*, Mumbai.

Fuchs, V. R. (1978), *The Service Economy*, NBER, New York.

Gorman, J. A.(1969), "Real Output and Productivity of Banks", in V. R. Fuchs (ed), *Production and Productivity in Service Industries*, NBER, New York.

Gershuny, J. I. and Miles, I. D. (1983), *The New Service Economy*, Frances Printer, London.

Goldsmith, M. (1975), *Forward Planning in the Service Sectors*, Macmillan, London.

Government of India, *Bulletin of Food Statistics*, 1978, 1979, 1980, New Delhi.

Kumar, H. and Bhatnagar, H. R. (1982), "Public Service in National Consumption", *Journal of Income and Wealth*.

Kuznets, S.(1971), *Economic Growth of National : Total Output and Production Structure*, The Belknap Press of Harvard University Press, Cambridge, Massachusetts.

Labour Bureau (1983), *Pocket Book of Labour Statistics*, Government of India, New Delhi.

Lawrence, P. (1992), "Manufacturing or Services after 1992?" *Economic Affairs*, 1989, reprinted in *Recent Controversies in Political Economy*, Russell, L.(ed.) Routledge, London.

Liston, D., OBE,(1992), "Manufacturing versus Services: A False Dichotomy?", *Economic Affairs*, 1989, reprinted in *Recent Controversies in Political Economy*, Russell, L.(ed.) Routledge, London.

Miles, I. D. and Irvine, J. (1982), *The Poverty of Progress*, Pergamon, Oxford.

Rangarajan, C, and Jadhav, N. (1992), "Issues in Financial Sector Reform", in Jalan, B. (ed), *The Indian Economy: Problems and Prospects*. Viking, New Delhi.

Reserve Bank of India, *Banking Statistics: Basic Statistical Returns*, different years, Bombay.

Reserve Bank of India, *Report on Currency and Finance*, different years, Bombay.

Reserve Bank of India, *Statistical Tables Relating to Banks in India*, different years, Bombay.

Ruggles, R. and Ruggles, N. D. (1956), *National Income Accounts and Income Analysis*, McGraw-Hill Book Company Inc., New York.

Russel, L. (1973), *The New Service Society*, Longman, London.

Shaw, B. (1928), *An Intelligent Woman's Guide to Socialism and Capitalism*, Constable and Company Ltd., London.

Singelman, J. (1978), *From Agriculture to Services*, Sage Publications, London.

Sivasubramonian, S. (1999), "Twentieth Century Economic Performance of India" paper presented at the *International Conference on Income and Wealth* organized by Indian Association for Research in National Income and Wealth, New Delhi.

United Nations (1971), *Basic Principles of the System of Balances of the National Economy*, Studies in Methods, Series F, No. 17, New York.

United Nations (1993), *System of National Accounts*, prepared under the auspices of the inter-secretariat working group on national accounts, USA.