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TRENDS IN PUBLIC SECTOR SAVING AND INVESTMENT

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TRENDS IN PUBLIC SECTOR SAVING AND INVESTMENT *

A striking phenomenon in recent years noticed by many is the high rate of saving and investment achieved in the economy. Since this, however, is unaccompanied by a correspondingly high rate of growth of national output, which in fact has slowed down considerably since the mid-sixties, some have questioned these estimates themselves, while others have tried to explain this phenomenon.[1/]

In India, as in most developing economies, which have followed a capitalist path of development through active State intervention in the post-Independence period, a large part of this investment is accounted for by the public sector. It is well known that the State invested heavily in building up the infrastructure and heavy industry base which were essential for rapid industrialisation of the economy. In this paper we attempt to study long term trends in public sector saving and investment estimates of which are relatively less questionable and have also shown a substantial increase in recent years. We wish to highlight the changes that have occurred in their magnitude and pattern since the beginning of planned economic development.

The paper falls broadly into three parts. Section one deals with capital formation in the public sector and its break up into various components - type of authority, assets, and industry of use. Savings and its distribution by type of authority are discussed in section two. The main findings are summarized in section three.

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I

Sources of Data and their Limitations

The earliest and various attempts at estimating saving and capital formation in the economy and their limitations have been well-documented by Rudra.[2/] The major source of official estimates from 1950-51 used in this study is the National Accounts Statistics (NAS) brought out by the Central Statistical Organisation. Gross (Net) Domestic Capital Formation, GDCF (NDCF) is defined as gross (net) additions to 1) construction(excluding military installations); 2) machinery and equipment (excluding durable goods in the hands of households and war equipment) and 3) change in stocks or inventory accumulation (excluding changes in stock of war materials). The first two components constitute gross (net) fixed capital formation (GFCF/NFCF).

The public sector in our study refers to the totality of government activity. It includes (a) Government administration (GA), covering, Central, State and Local Governments; (b) departmental undertakings (DUs), such as railways, posts and telegraphs, navigation, drainage and power projects, and (c) non-departmental undertakings (NDUs) which are mainly organised as companies and a few as statutory corporations. Most official documents also classify the public sector in a similar manner in view of the variety of functions it performs and differences in organisational structure within it. Difficulties, however, still exist in defining it in certain cases.[3/]

Estimates of GDCF of Government administration and departmental undertakings are made by taking from these sources, outlays on physical assets, excluding land and purchase of financial assets. In case of administrative departments, since expenditure on maintenance is treated as an item of current repairs and not as depreciation, NDCF is the same as GDCF. In DUs, NDCF is estimated by deducting provision for depreciation and maintenance from GDCF. In respect of non-departmental undertakings, GDCF is measured as value of gross additions to fixed assets (excluding land) and change in the value of inventories during a year. Deduction of depreciation on fixed assets from these estimates gives us net investment in NDUs. Several problems - like evaluation of work-in-progress and its treatment as construction, machinery and equipment or stocks; varying concepts of depreciation; differences in accounting year etc. - have been pointed out in the estimation of capital formation in the public sector. In recent years, especially, there has been a rapid increase in 'expenditure during construction' and 'capital works-in-progress' in the non-departmental undertakings and it is not very clear from the official statistics themselves, under what asset they have been classified.4/

Another problem arises on account of the possibility of leakage of funds especially at the construction stage. Evidence shows that fruitless (not fruitful) expenditure in the case of some public sector projects has been very high which pushes up their investment costs. This could be a possible source of overestimation of capital formation in the public sector.5/ However, much more systematic data have to be collected in this regard before we can assess its significance, in particular whether the extent of leakages has increased over time, which would affect the rate of growth of public sector investment and not merely its level.

A major limitation of our study which has to be kept in mind is that the whole analysis is in terms of current prices. The NAS gives total capital formation and its asset wise break up at constant prices but similar data for the two sectors, public and private, are not available. It is not possible to use these implicit deflators for deflating public sector investment since a) the method of estimating total capital formation is different from its sector-wise estimation[6/] and b) the asset-mix for the total economy on the one hand and public sector on the other is not the same.[7/] Since, however, these problems appear to be less severe for the component, machinery and equipment which includes a wide range of assets, we have constructed a constant price series for it using the above mentioned implicit deflator.

All these limitations have to be kept in mind while studying trends in capital formation in the public sector.

Estimates of CF in the Public Sector

Yearly figures of gross and net domestic capital formation as a proportion of gross and net domestic product for the public sector and the total economy at current prices and their five year averages are given in Table 1.*

As can be seen from the table, the ratio of GDCF/GDP in the public sector has increased significantly from 2.7 per cent in 1950-51 to about 10 per cent in 1978-79. A closer look at the five year averages however, brings out a fact already known, that most of the increase in investment occurred upto the mid sixties period, that is roughly the end of the

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*All tables are given at the end of the paper.

Third Plan period, when the ratio rose to 8.0 per cent. Even within these years the increase was very sharp between 1955-60. The share of the public sector in total GDCF in the economy started rising from the Second Plan period and by the mid sixties was about 46 per cent.

However, since 1964-65 we find an actual decline in the proportion of GDCF/GDP in the public sector during which period GDCF in absolute terms fell in certain years. It declined to 6.1 per cent by 1969-70, rising to a little over 7.0 per cent by the early seventies. Since 1973-74 the rate of investment started rising again and by the end of the last period it had reached a level of 9.8 per cent (average) which is higher than the level reached in the mid sixties. The share of the public sector in total GDCF which had declined to about 40 per cent in the post mid-sixties period almost reached its earlier 46 per cent level by 1975-79, even though the rate of capital formation in this sector had risen to a higher level. This, it may be noted is on account of the behaviour of private sector investment during this period. In the post mid-sixties period when the rate of public sector investment declined, the overall rate for the economy increased, from about 17 per cent in 1960-65 to 19 per cent in 1970-75 and further to 22 per cent by 1975-79. This requires a detailed study of the behaviour of private investment in the post mid sixties period especially since this was also a period of a sharp deceleration in the rate of growth of industrial output in the economy.[8/]

In terms of net investment though trends in the public sector remain the same as above, its share is much higher in total NDCF and in fact was as high as 66 per cent during 1960-65. This is obviously because the share of depreciation in GDCF is much lower in the public sector than the private

sector. To a large extent this is on account of the larger initial stock of capital in the private sector as also the fact that government capital on average is more long lived in which case the share of the public sector in NDCF exceeds its share in GDCF.[9/]

The compound growth rates for GDCF, NDCF in the public sector and the economy as a whole are given in Table 2. In this table we have divided the whole period into two sub-periods to bring out the deceleration in the rate of growth of public sector investment in the post mid sixties period as was indicated in Table 1. (The period after 1973-74 when public sector investment started to rise again is too short for estimating growth rates). The rate of growth of GDCF (NDCF) in the public sector is as high as 17-18 per cent upto the early half of the sixties; subsequently the rates declined to around 14 per cent.

How far these trends in aggregate capital formation are maintained in real terms, in particular the substantial increase in recent years, and what are the concrete forms of capital formation, are matters of major concern which we deal with now.

GDCF/GDP by Type of Assets

In Table 3 we give asset wise break-up of the rate of gross public investment at current prices. For machinery and equipment alone a constant price series is given. Of the total investment of 3.12 per cent (average) in the early fifties, 3.0 per cent (that is, almost 97 per cent) was on account of GFCF (that is, construction and machinery). By the end of the period, GFCF accounted for 8.68 per cent in a total of 9.84 per-cent, its share having declined to 88 per cent. This is on account of the

behaviour of stocks. The share of the latter though erratic shows a sharp increase from about mid-seventies onwards accounting for almost 1½ per cent of the GDP by 1975-79 as against 0.1 per cent in the early fifties.

Within GFCF the two components behave differently. Initially, construction accounted for almost three-fourths of GDCF in the public sector - 2½ per cent of the GDP in 1950-55 - which increased to over 5 per cent in 1960-65. During this period machinery and equipment which constituted 0.64 per cent of the GDP in the fifties rose to 2.34 per cent having increased its relative share during this period. However, since the mid sixties there was a sharp decline in the rate of capital formation in construction which fell to 4.25 per cent by 1974-75 rising marginally to 4.65 per cent by 1975-79. On the other hand, the rate of capital formation stagnated in machinery and equipment but showed a sharp increase from the mid-seventies onwards. From an average of 2.39 per cent in 1970-75 it rose to 4.04 per cent in the last four year period. How far is the behaviour of the rate of capital formation in machinery and equipment real? Due to the fact that prices of capital goods in the years prior to 1970-71 increased at a rate lower than that of the general price level, the rate of capital formation in machinery at constant 1970-71 prices is higher than at current prices during that period. However, since then the situation has changed and in recent years, when it is well known that prices of capital goods rose very rapidly, the increase in investment in machinery and equipment at constant prices between 1970-75 and 1975-79 is only marginal - less than half per cent compared to an increase of over 1½ per cent at current prices (see statement below, col.3).

5-year average	GDCF/GDP in the Public Sector						
	at current prices		Machinery & equipment @ constant prices	Change in Stocks	Total @ current prices	Total @'constant' prices	GFCF/GDP @'constant' prices
	Construction	Machinery & equipment					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970-75	4.25	2.39	2.04	1.02	7.60	7.31	6.29
1975-79	4.65	4.04	2.22	1.30	9.84	8.17	6.87

Source: Derived from Table 2.

Note: 'Constant' prices means Construction & Change in Stocks @ current prices and machinery & constant prices.

From columns 5 and 6 we can see that almost 75 per cent of the increase in investment at current prices is on account of the rise in prices of machinery and equipment alone. If we also exclude inventories which have increased very sharply in recent years then the rate of real fixed capital formation during 1975-79 is 6.87 per cent (see col.7), which is lower than the level of 7.54 per cent reached in the mid-sixties (see Table 3). It is however, higher than the rate in the post mid-sixties period which was a little over 6 per cent (average) during 1970-75.

GDCF by type of authority

Year wise figures of GDCF in Government Administration, Departmental Undertakings and Non-Departmental Undertakings and five year averages of their relative shares in total GDCF in the public sector are given in Table 4. The relative shares as between the three sub-sectors has changed

very substantially during this period. At the time of Independence, most of the public investment was in railways, public buildings, and to some extent in irrigation. Government companies or corporations were very few; the Reserve Bank was nationalised in the late forties and the Damodar Valley Corporation was set up in 1948.[10] Hence departmental undertakings accounted for about 65 per cent of GDCF almost upto the late fifties but since then their share has fallen very sharply even during the period when total public sector investment was increasing rapidly. The share of GA remained almost the same at about 25 per cent upto 1960-65 but since then has fluctuated, declining to 20 per cent by 1970 and rising to 24 per cent in the next five year period. It then declined to 15 per cent by 1975-79. The change in the share of NDUs has been most dramatic. From a very low figure of Rs.15 crores in 1950-51, gross investment in such undertakings has risen to Rs.56,97 crores, that is almost 6 per cent of the GDP in 1978-79. The increase was most rapid upto the mid-sixties, their share rising from 9 per cent of total GDCF during 1950-55 to almost 38 per-cent by 1960-65. Since then while the shares of the other two fell, that of NDUs rose to about 46 per cent by 1960-70 at which level it stagnated till the mid seventies after which it registered a substantial increase to 58 per cent.

A two way table by type of authority and assets brings out the differences in the relative importance of the three types of assets under each authority (see Table 5). These data in a revised form are available only from 1960-61. Five year averages of the share of important components of capital formation under each type of authority are given. In the case of GA we take only construction, while for DUs construction and machinery and

equipment are taken; change in stocks is marginal for these two sectors. We look more closely into the pattern of capital formation in NDUs in which all three components are significant. In the last two years, the two items expenditure during construction' and 'capital works in progress' accounted for as much as 25 per cent of GDCF in NDUs which needs to be looked into. The lower end of the table also gives compound growth rates for the different components classified by authorities, for the period 1960-61 to 1978-79.

As can be seen from the table, construction accounts for a larger share of GDCF in GA and DUs while machinery and equipment constitutes about 45 per cent of the GDCF in NDUs. However, even in the case of construction the rate of growth has been higher in NDUs, 12 per cent compared to about 10 per cent per annum in GA and DUs. The declining share of DUs in total GDCF is reflected also in the rate of growth of machinery and equipment in this sector which was as low as 8 per cent compared to a growth rate of 14 per cent per annum in NDUs. The rate of growth has been the highest in respect of stocks in NDUs - 15.5 percent. This accumulation of stocks which has occurred primarily in the non-departmental undertakings has occurred in respect of foodgrains (held by the Food Corporation of India) and manufactured products of which coal shows a very sharp increase.

NDCF by Industry of Use

This analysis, though limited by data which are available only from 1960-61 and by major industry groups, throws up some interesting trends (see Table 6). It is not clear why capital formation by industry groups is not available in gross terms.

At the start of the planning period, community, personal and other services which include public administration would have acoounted for the highest proportion of NDCF in the public sector. By 1960-61, the secondary sector dominates, contributing almost 36 per cent of the NDCF. The share of services is about 25 per cent and of transport and communication about 20 percent. From these data and dividing the period broadly into the pre mid-sixties, the post mid-sixties upto 1972-73 and 1973-74 onwards we estimate the increase in total NDCF for each period and its percentage distribution over the various industry groups. This brings out the changes in the pattern of investment quite sharply (see statement below).

Industry Group	1960-61 to 1965-66	% Distribution	1965-66 to 1972-73	% Distribution	1972-73 to 1978-79	% Distribution
I. 1. Primary Sector incl. mining	+117	12.4	+315	30.1	+1343	23.6
2. Manufacturing	+179	18.9	+64	6.1	+1540	27.1
a) Departmental	+69	7.3	-45	-4.3	+63	1.1
b) Non-departmental	+110	11.6	+110	10.6	+1477	26.0
3. Electricity, gas, etc.	+259	27.4	+208	19.9	+1208	21.2
II. Sub-Sector Secondary	+457	48.3	+247	23.6	+2860	50.2
4. Railways	+153	16.2	-21	-2.0	+128	2.2
5. Communication	+18	1.9	+70	6.7	-35	-0.6
6. Trade, Hotels, etc.	+68	7.2	-260	-24.8	+618	10.8
III. Sub Sector Transport, Storage, Communications	+271	28.6	-46	-4.4	+930	16.3
7. Public Administration and Defence	+86	9.1	+410	39.2	+333	5.8
8. Other services	+19	2.0	+91	8.7	+197	3.5
IV. Sub Sector Finance, Community and Personal Services	+110	11.6	+512	48.9	+558	9.8
Total NDCF	+946		+1047		+5691	

Source: Derived from Table 6.

During the period upto 1965 when the rate of capital formation was rising in the public sector, a large proportion of the investment occurred in manufacturing, electricity, gas etc. and to some extent in the primary sector which mainly included irrigation works upto the early seventies. In manufacturing as is well known most of the investment was in steel from around 1955 and later in heavy machinery and chemicals; that is in building up the infrastructure and heavy industry base. However, in the post-mid-sixties period when there was a decline in public investment it was felt quite severely in these basic and heavy industries. There was a sharp dclcine in capital formation in manufacturing which in fact was lower during this period and was negative for the DUs. Net capital formation in railways also fell substantially and was negative; electricity, gas etc., also showed a decline. The increase in primary sector's contribution is mainly on account of coal nationalisation in 1972-73. It is not clear why there was such a large increase in NDCF in public administration during this period.

In the third sub-period we find a substantial increase again in investment in manufacturing, electricity, gas and mining (included in the primary sector). However, within manufacturing NDCF in DUs is still very sluggish. Of a total increase of Rs.1540 crores in this sector only Rs.63 crs. was invested in DUs. A sector in which capital formation has increased rapidly in trade, hotels etc. which is a relatively new area into which the public sector is venturing in a big way.

II

Estimates of Saving in the Public Sector

For government administrative departments savings are estimated by deducting current expenditures from current receipts. Items of expenditure include 1) consumption expenditure; 2) interest on public debt; 3) subsidies and 4) current transfers; while receipts include 1) direct and indirect taxes; 2) income from property and enterprenuership and 3) miscellaneous.

Net saving of Government companies and statutory corporations including Reserve Bank and Life Insurance Corporation is estimated from their annual accounts. It is obtained as an aggregate of net transfers to reserves.

The treatment of subsidies as well as accummulated losses of public sector enterprises has been frequently discussed and still remain controversial problems. Much of the discussion has centred round the inappropriateness of the existing methods of accounting for them, the view being expressed that certain implicit subsidies, as for instance those arising where output prices are deliberately kept low, should be explicitly taken into account.[12/]

Savings as we know are an important source of finance. The First Plan document had emphasised the fact that the State itself must raise a considerable proportion of the savings required for its massive investment programmes. However, trends in gross and net savings of the public sector are quite dismal. Unlike its performance in respect of capital formation, the public sector has contributed very little to total domestic saving.

In this context, it may be pointed out that some of the constraints under which public sector units operate have not been sufficiently considered. Non-profit objectives form a much larger component of public investments. The pricing of public sector goods/services at subsidized/controlled rates consistent with their social priorities, creation of social benefits such as townships, development of backward areas, promotion of research and development, overstaffing etc. are factors which reduce the ability of such enterprises to generate surpluses. Rather than building them into the accounting procedures of public sector projects and providing outer limits for their costs, these questions have been discussed but left vague.[13] However, it should not be concluded that these factors are solely responsible for the losses made by some public sector undertakings, since sufficient evidence exists suggesting operational inefficiency and lack of financial discipline in certain enterprises.

Table 7 shows that net saving in the public sector as a proportion of NDP is still very small although it increased from 1.3 per cent at the start to 2.6 per cent during 1960-65 after which it declined to around 2 per cent rising to 3.7 per cent in the last period. The share of the public sector in total Net Domestic Savings (NDS) has stagnated around 21 per cent and since the contribution of the private corporate sector is even smaller most of the savings have been generated in the household sector. Compound growth rates for net and gross domestic saving in the public sector and total economy are given in Table 2. Although the rate of growth of NDS and GDS in the public sector for the period as a whole has not been much lower than that of NDCF and GDCF there is variation between the two sub-periods. In the first sub-period the rate of growth of GDS was much lower than that of GDCF in the public sector so that the

gap between saving and investment widened. In the post mid-sixties period even though the rate of growth of net public saving had risen to almost 20 per cent, while the rate of growth of GDCF had declined it was not sufficient to support the higher level of investment. Public sector saving then, has fallen short of its investment requirements so that overall this sector has emerged as a net borrower. Although the proportion of investment financed from outside the sector has declined in recent years it is still more than 51 per cent (see statement below).

Savings Gap	5 year average	1950-51 to 1954-55	1955-56 to 1959-60	1960-61 to 1964-65	1965-66 to 1969-70	1970-71 to 1974-75	1975-76 to 1978-79
1. GDS/GDP-GDCF/GDP							
a) Public Sector		-1.41 (45.48)	-4.18 (69.78)	-4.77 (58.62)	-4.71 (64.08)	-4.46 (58.68)	-5.11 (51.93)
b) Private@ Sector		+0.72	+1.77	+1.15	+2.12	+2.93	+5.06
2. Foreign Capital inflow (net)		+0.69	+2.41	+3.62	+2.59	+1.53	+0.05

Source: Derived from Tables 1 and 7.

Note : @Household sector is the net lender.

Figures in brackets refer to ratio of the gap to total public sector investment, i.e., proportion of investment financial from outside the sector.

The statement gives sectorwise gap in saving and investment, the overall gap being accounted for by net foreign capital inflow. It brings out a) the extent of dependence of the public sector on saving from outside

the sector for financing its own investment. It had increased to almost 60 per cent by the mid sixties having reached a peak of 70 per-cent between 1955-60; and b) a significant change in the pattern of financing public sector investment since the mid sixties. Upto this period the larger part of the gap was supported by net foreigh capital inflow which formed about 3.6 per cent of GDP during 1960-65 or almost three fourths of the total gap. Since then the domestic household sector has emerged as the single largest source of borrowing for the public sector. It supported more than 90 per cent of the gap in the last four year period.

Savings by Type of authority

Before we summarizes the main findings we also give a brief description of the pattern of public sector savings. Table 8 gives the break up of NDUs by type of authority. Savings of administrative departments include operating surplus of DUs. The first year averages show that the rate of saving was higher in GA & DUs (as also its rate of growth) rising from 1.1 per cent in 1950-55 to 3.7 per cent in 1975-79, while the ratio was as low as 0.1 per cent for NDUs in the initial period and declined quite sharply in 1960-65, after which it rose very marginally. Hence, the rate of savings and its growth was in fact the lowest in the sector in which investment rose at a very rapid rate especially in the earlier years.

III

The above analysis brings out the very high rates of GDCF and NDCF in the public sector in the post-Independence period, at least upto the mid-sixties. At current prices the data indicate the existence of three phases in the behaviour of public sector investment since 1950-51:

I. The early phase, upto the mid-sixties, of rapid growth in capital formation with the launching of the Mahalanobis strategy of development, emphasising the need for large scale investment in building up the infrastructure and heavy industry base which were essential for rapid self-reliant growth. Given the capital intensive nature of such investment, there was a tendency for levels of capital formation to be high in the public sector. It has also been alleged sometimes that since much of the equipment required was procured against aid, there could have been a tendency towards overcapitalisation.[13] This of course needs a deeper study.

During this period, there was an increase in capital formation in both construction and machinery, though at a much faster rate in the latter; the share of stocks fluctuated at a relatively low level. The fact that the undertakings in which most of the capital formation occurred were organised as companies and a few as corporations.[14] brings out a) the rapid growth of NDUs since the early fifties and b) the essentially capitalist character of state intervention, in particular, when members of the Board of Directors of these companies were drawn from the top echelons of the bureaucracy and business class.[15]

II. Since the mid sixties the Government failed to sustain the high rates of investment even though the base had certainly not been laid for self sustained growth of the economy.[16] Despite this, the State had to reduce investment in basic and heavy industries, the incidence of which was severest on the DUs especially the railways. An enquiry into the reasons for this cut back in public investment is beyond the scope of this paper but the fact that it occurred at a time when there was an inflationary rise in prices suggests that a major consideration must have been the fear of aggravating the price situation. It, however, also points to the inability of the government to tax those sections of the population who benefited most from this rise in prices, in order to mobilise enough resources for sustaining its own investment programmes.

III. An upturn in the rate of capital formation in the public sector from around 1973-74. Although it appears to be concentrated once again in manufacturing, coal, electricity and gas, that is heavy and basic industries, one has to probe deeper to assess the nature of this investment and its implications for the pattern of growth of the economy.

The level of savings in the public sector, however, remains very low especially in the NDUs in which the rate of growth of capital formation has been the highest. This raises doubts regarding the ability of these enterprises to generate the high level of savings envisaged in the current Plan programmes. The public sector still depends heavily for funds outside the sector to support its investment outlays, though there is a greater dependence on internal borrowings now compared to the earlier period.

In real terms, to the extent that such an exercise is possible, the trends in public sector investment in the first two phases are maintained. In the third period however, while the increase in the rate of capital formation at current prices is impressively high, at constant prices it does not show any marked rise over the mid-sixties rate. A recent trend is the increasing share of inventories in total GDCF; if inventories are excluded, the rate of GFCF in real terms is lower in 1975-79 compared to the mid sixties rate but higher than the rate in the post mid sixties period. In conclusion then, it appears that the recent increases in public sector saving & investment do indicate an upward trend. Perhaps only a few years later, would it be possible for us to assess the nature, magnitude and direction of its impact.

Footnotes

1/ See among others, K.N.Raj, Prospective Changes, Seminar, December 1979; S.L.Shetty & K.A. Menon, Savings and Investment without Growth, Economic and Political Weekly, 24 May 1980; N.A.Majumdar, et.al. The High Saving Phase of the Indian Economy: 1976-79, Reserve Bank of India Occassional Papers, June 1980 and A. Ghosh, et.al., Trends in Capital Formation, Growth of Domestic Product and Capital-Output Ratios, paper presented at Indian Association for Research in National Income and Wealth (IARNIW), Seminar in Pune, January 1981.

2/ A. Rudra, Savings, Investment and Consumption, Data Base of the Indian Economy (ed.), C.R. Rao, Vol.I, 1972.

3/ As pointed out in the IARNIW Seminar Report on Inter Sectoral Flows and Financing of Capital Formation in India, Journal of Income and Wealth, April 1979.

4/ For instance, if we add both the items to 'construction' or both to machinery and equipment; or 'expenditure during construction' to construction and 'capital works in progress' to machinery & equipment, the resultant figures differ from the asset wise break up of GDCF in the public sector given separately. See NAS, January 1981.

5/ This has been pointed out by Shetty & Menon, op.cit., and also taken up in A. Ghosh, et.al. op.cit.

6/ See, National Accounts Statistics, Sources and Methods, 1980, Central Statistical Organisation.

7/ Ibid.

8/ S.L.Shetty, Structural Retrogression in the Indian Economy since the Mid-Sixties, Economic and Political Weekly, February 1978.

9/ L.G.Reynolds, Public Sector Saving and Capital Formation, Government and Economic Development (ed.), G. Ranis, Yale University, 1971.

10/ See, R.K.Hazari and A.N.Oza, The Public Sector in India, Economic Development in South Asia, (ed.) E.A.G. Robinson and M.Kidron.

11/ Report of Committee on Control and Subsidies, Ministry of Finance, May 1979.

12/ Hazari and Oza, op.cit.

13/ Ibid.

14/ Although the First Industrial Policy Resolution (1948) had very clearly stated that the new undertakings in the public sector would be organised as corporations, most of the units set up took the form of companies. See, Report of the Administrative Reforms Commission on Public Sector Undertakings, 1967.

15/ P. Chattopadhyay, State Capitalism in India, Monthly Review, March 1970.

16/ See, S.L.Shetty, op.cit.

Table 1: GDCF/GDP and NDCF/NDP (@ Current prices) in Public Sector and the Total Economy (in per cent)

Year	Public Sector		Total	
	GDCF/GDP	NDCF/NDP	GDCF/GDP	NDCF/NDP
1950-51	2.71	2.32	11.82	8.73
1951-52	3.02	2.66	11.59	8.31
1952-53	2.62	2.24	8.80	5.01
1953-54	2.79	2.43	8.26	4.70
1954-55	4.50	4.16	11.23	7.12
5 year average	3.12	2.76	10.34	6.76
	(30.58)	(42.67)		
1955-56	4.86	4.39	13.80	9.86
1956-57	5.64	5.26	16.01	12.40
1957-58	6.95	6.64	16.19	12.26
1958-59	6.06	5.79	12.92	8.66
1959-60	6.44	6.19	15.12	10.91
5 year average	5.99	5.65	14.81	10.81
	(40.58)	(52.94)		
1960-61	7.60	7.18	17.20	12.93
1961-62	7.18	6.70	16.78	12.32
1962-63	8.45	7.96	17.84	13.11
1963-64	8.55	8.10	17.95	13.55
1964-65	8.45	7.94	17.65	13.48
5 year average	8.05	7.58	17.48	13.08
	(45.97)	(66.40)		
1965-66	9.19	8.74	18.36	13.98
1966-67	7.72	7.14	19.22	14.91
1967-68	7.22	6.57	17.67	13.50
1968-69	6.51	5.80	16.65	12.20
1969-70	6.13	5.36	17.57	13.06
5 year average	7.35	6.72	17.89	13.52
	(41.0)	(59.49)		
1970-71	6.89	6.11	18.24	13.48
1971-72	7.30	6.47	19.40	14.68
1972-73	7.54	6.67	17.82	12.96
1973-74	8.17	7.31	19.26	14.89
1974-75	8.14	7.51	20.85	16.63
5 year average	7.60	6.81	19.11	14.52
	(39.83)	(47.00)		
1975-76	10.35	9.74	22.13	17.63
1976-77	10.56	9.89	22.01	17.43
1977-78	8.21	7.34	20.44	15.78
1978-79	10.23	9.46	23.15	18.39
4 year average	9.84	9.11	21.93	17.31
	(44.78)	(52,48)		

Source: National Accounts Statistics, CSO, January 1978, October 1976, February 1980 and January 1981.

Note : Figures in brackets are 5 year average shares of Public Sector GDCF in total GDCF.

Table 2: Compound Growth Rates for GDCF, NDCF, GDS and NDS
@current prices (in per cent)

	Public Sector			Total		
	1950-51 to 1978-79	1950-51 to 1964-65	1965-66 to 1978-79	1950-51 to 1978-79	1950-51 to 1964-65	1965-66 to 1978-79
1. GDCF	13.51*	17.52	14.14	12.24	11.23	13.61
2. NDCF	13.49*	18.25	14.13	12.84	10.21	16.26
3. GDS	13.45	12.61	17.79	12.63	9.57	15.47
4. NDS	13.26	13.07	19.57	13.50	9.88	16.71

*Growth rate in the public sector for the whole period is lower than the growth rate for the two sub-periods because of the nature of the slopes of the latter series.

Table 3: GDCF/GDP in the Public Sector by Type of Assets @Current prices
(in per cent)

Year	Type of Asset	Construc-tion	Machinery & Equipment	Machinery & Equipment at (70-71 pri-ces)	GFCF (1+2)	Change in stocks	Total @ (4+5)
		(1)	(2)	(3)	(4)	(5)	(6)
1950-51		1.77	0.58	1.06	2.34	0.37	2.71
1951-52		2.08	0.53	0.86	2.61	0.41	3.02
1952-53		2.36	0.52	0.76	2.88	-0.26	2.62
1953-54		2.51	0.62	0.85	3.13	-0.33	2.79
1954-55		3.13	0.94	0.94	4.07	0.43	4.50
5 year average		2.37	0.64	0.89	3.01	0.11	3.12
		(75.96)	(20.51)		(96.47)	(3.53)	
1955-56		4.12	1.07	1.17	5.19	-0.33	4.86
1956-57		3.84	1.36	1.71	5.20	0.43	5.64
1957-58		4.12	1.24	1.70	5.36	1.58	6.95
1958-59		3.94	1.28	1.35	5.21	0.85	6.06
1959-60		3.87	2.45	2.63	6.32	0.11	6.44
5 year average		3.98	1.48	1.71	5.46	0.53	5.99
		(66.44)	(24.71)		(91.15)	(8.85)	
1960-61		4.50	2.52	2.58	7.02	0.58	7.60
1961-62		4.71	2.22	2.20	6.93	0.25	7.18
1962-63		5.33	2.34	2.38	7.67	0.78	8.45
1963-64		5.82	2.13	2.10	7.95	0.61	8.55
1964-65		5.42	2.50	2.62	7.92	0.54	8.45
5 year average		5.16	2.34	2.38	7.50	0.55	8.05
		(64.10)	(29.07)		(93.17)	(6.83)	
1965-66		5.71	2.77	3.02	8.48	0.71	9.19
1966-67		4.76	2.64	2.65	7.40	0.32	7.72
1967-68		3.86	2.37	2.41	6.23	0.99	7.22
1968-69		3.90	2.44	2.48	6.34	0.17	6.51
1969-70		4.07	1.88	1.94	5.94	0.19	6.13
5 year average		4.46	2.42	2.50	6.88	0.48	7.35
		(60.68)	(32.93)		(93.61)	(6.53)	
1970-71		3.84	2.20	2.20	6.04	0.94	6.89
1971-72		4.41	2.16	2.08	6.57	0.84	7.30
1972-73		5.07	2.63	2.34	7.70	-0.02	7.54
1973-74		4.39	2.40	1.97	6.80	1.36	8.17
1974-75		3.56	2.54	1.62	6.11	2.00	8.14
5 year average		4.25	2.39	2.04	6.64	1.02	7.60
		(55.92)	(31.45)		(87.37)	(13.88)	
1975-76		3.87	3.78	2.12	7.64	2.80	10.35
1976-77		4.65	4.17	2.35	8.82	1.80	10.56
1977-78		4.72	4.04	2.26	8.76	-0.29	8.21
1978-79		5.36	4.15	2.15	9.51	0.88	10.23
4 year average		4.65	4.04	2.22	8.68	1.30	9.84
		(47.26)	(41.06)		(88.21)	(13.21)	

Notes: *Column 3 has been estimated by using the implicit deflator for machinery and equipment given in capital formation estimates.
@constant prices for the economy as a whole.
@The slight discrepancy between total as given in column 6 and the total by adding up columns 4 and 5 is on account of exclusion of net purchase of Second hand physical assets.
Figures in brackets refer to 5-year average percentage share of each component in GDCF

Table 4: GDCF by Type of Authority (Rs. crores)

Year	GA	DUs	NDUs
1950-51	77	172	15
1951-52	104	183	17
1952-53	42	185	30
1953-54	41	203	49
1954-55	149	257	31
5 year average	83	200	28
	(25.5)	(65.1)	(9.4)
1955-56	123	339	36
1956-57	182	413	71
1957-58	275	452	106
1958-59	197	414	204
1959-60	220	331	348
5 year average	199	390	153
	(26.7)	(54.4)	(18.9)
1960-61	335	338	464
1961-62	274	451	444
1962-63	349	592	523
1963-64	348	691	632
1964-65	447	762	711
5 year average	351 (24.2)	567(37.9)	555 (37.9)
1965-66	448	765	971
1966-67	345	751	1018
1967-68	539	714	1058
1968-69	340	746	1060
1969-70	509	728	997
5 year average	436	741	1021
	(19.7)	(33.8)	(46.5)
1970-71	581	843	1349
1971-72	740	994	1431
1972-73	1014	1138	1455
1973-74	1325	1268	2221
1974-75	1080	1501	3083
5 year average	948	1149	1908
	(23.8)	(29.2)	(46.4)
1975-76	1221	1733	4723
1976-77	1306	2019	5183
1977-78	1182	2238	3988
1978-79	1574	2728	5697
4 year average	1321	1744	4898
	(15.7)	(25.9)	(58.3)

Source: From 1) 1950-51 to 1959-60, P. Narain et.al. Public Sector Investment and its Financing, The Journal of Income and Wealth, Vol.3, No.1, 1978;
2) 1960-61 to 1978-79, NAS, op.cit.

Table 5: Share of Each Component in GDCF by Type of Authority (in percent)

Share	GA	DUS		NDUS @				
	Construction	Construction	Machinery & Equipment	Construction	Machinery & Equipment	Expenditure during Constrn.	GECF	Change in Stock
1960-61	80.30	82.54	26.9	16.16	56.47	0.43	73.06	13.36
1961-62	104.74*	72.73	27.49	25.0	48.87	5.89	79.76	15.09
1962-63	94.27	66.72	26.52	26.0	43.21	9.75	78.96	17.08
1963-64	106.90	68.87	24.68	25.6	36.08	20.57	82.35	10.35
1964-65	91.95	69.29	26.51	24.97	48.80	19.13	92.43	11.53
5 year av.	95.63	72.03	26.42	23.54	46.68	11.15	81.29	12.76
1965-66	99.09	66.67	29.88	28.7	40.99	11.53	81.22	17.20
1966-67	131.30	63.62	33.46	28.6	43.42	8.94	80.96	20.62
1967-68	86.83	67.51	32.03	25.71	47.73	0.47	73.91	25.99
1968-69	137.97	68.50	31.10	23.68	51.04	5.75	80.47	21.04
1969-70	99.04	73.90	27.75	26.98	45.24	17.45	89.67	11.33
5 year av.	110.85	68.04	30.84	26.73	45.68	8.83	81.24	19.34
1970-71	98.80	69.51	25.98	19.13	31.28	25.06	75.47	27.50
1971-72	106.08	68.21	25.15	23.27	32.35	19.78	75.40	27.83
1972-73	102.06	72.23	22.93	25.84	47.01	21.86	94.71	2.54
1973-74	86.49	75.77	24.62	16.57	34.71	15.26	66.59	33.05
1974-75	82.38	69.09	27.51	14.66	33.96	9.50	58.12	40.74
5 year av.	95.16	70.96	25.24	19.89	85.86	18.29	74.94	26.34
1975-76	80.43	66.76	30.76	11.75	36.23	11.79	59.77	40.78
1976-77	92.34	76.40	26.13	14.14	41.08	14.12	69.34	29.91
1977-78	118.95	75.56	24.13	20.16	55.32	24.95	100.43	2.73
1978-79	104.07	76.63	21.40	18.33	40.86	23.87	83.06	18.71
5 year av.	96.95	73.84	25.60	16.10	43.37	18.68	78.04	23.03
Compound Growth Rates 1960-61 to '78-79	10.19	9.75	8.67	12.19	14.07	n.e.	14.70	15.47

Note: 1) Share of each component is estimated as a proportion of GDC in that authority.

n.e. - not estimated.

@ Not purchase of Second Hand Assets not considered.

*More than 100 because change in stocks is negative.

Table 6: NDCF in the Public Sector by Industry of Use and Annual Change (Rs.crores)

Sector/Industry	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-7
I. Primary (incl.mining)	158	166	209	236	272	275	300	290	312	346	390	425	590	658	795	1132	1551	1652	193
		8	43	27	36	3	25	-10	22	34	44	34	165	68	137	337	419	101	28
					(15.8)					(16.1)					(16.4)				(21.
1. Manufacturing	250	170	205	235	296	429	484	422	346	299	284	395	494	799	1277	1199	1459	1276	203
		-80	35	30	61	133	55	-62	76	47	15	110	99	305	478	-78	260	-183	75
					(18.5)					(20.6)					(17.8)				(20.2
a) DUs	21	14	23	36	49	90	109	64	74	41	46	48	45	78	86	92	90	102	10
		-7	+9	13	13	41	19	-45	10	-33	5	2	-3	33	8	6	-2	12	6
					(2.1)					(4.0)					(1.8)				(1.
b) NDUs	229	156	182	199	241	339	375	358	272	258	238	347	449	721	1191	1107	1369	1174	192
		-73	26	17	43	92	36	-17	-86	-14	-20	109	102	272	470	-84	262	-195	75
					(16.4)					(16.7)					(15.9)				(18.8
2. Electricity, Gas etc.	100	181	223	286	289	359	334	348	344	409	544	545	567	602	748	1279	1367	1624	1775
		81	42	63	3	70	-25	14	-4	65	135	1	22	35	146	531	88	257	151
					(16.10)					(17.9)					(18.5)				(21.7
II. Secondary	365	368	450	547	609	817	848	810	734	753	830	954	1064	1439	2171	2538	1860	2982	3924
		3	82	97	62	208	31	-38	-76	19	77	124	110	375	732	367	322	122	942
					(37.0)					(39.8)					(37.2)				(42.0
1. Railways	124	172	247	301	310	277	185	161	145	102	177	234	256	218	270	294	234	308	384
		48	75	54	9	-33	-92	-24	-16	-43	+75	57	22	-38	52	24	-60	74	76
					(17.0)					(9.1)					(7.1)				(4.2)
2. Communication	15	16	27	41	42	33	51	50	49	58	30	62	103	89	52	71	79	68	72
		1	11	14	1	-9	18	-1	-1	9	-28	32	41	-14	-37	19	8	-11	4
					(2.0)					(2.6)					(2.0)				(1.0)
3. Trade, Hotels, etc.	4	6	6	10	9	72	48	97	165	34	194	143	-188	215	300	1185	1153	-223	430
		2	-	4	-1	63	-24	49	68	-131	160	-51	-331	403	85	885	-32	-1376	653
					(0.5)					(4.4)					(6.3)				(12)

Table 6 contd.,

	1960-61	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79
III. Transport, Storage & Communications	172	241	314	387	404	443	374	375	449	272	559	578	416	730	1007	2043	1890	531	1346
		69	73	73	17	39	-69	1	74	-177	287	19	-162	314	277	1036	-153	-1359	815
					(22.7)					(20.2)					(19.5)				(19.7)
1. Public Admn & Defence	307	242	311	307	398	393	286	474	257	414	471	591	803	1076	800	916	939	797	1136
		-65	69	-4	91	-5	-107	188	-217	157	57	120	212	273	-276	116	23	-142	339
					(24.2)					(19.1)					(22.3)				(12.9)
2. Other Services	15	18	20	23	28	34	38	47	51	56	64	81	125	152	166	182	263	263	322
		3	2	3	5	6	4	9	4	5	8	17	44	27	14	16	81		59
					(1.6)					(2.4)					(3.4)				(4.0)
IV. Finance, Community & Personal Services	326	263	333	331	429	432	331	524	315	475	545	692	944	1261	986	1318	1231	1088	1502
		-63	70	2	98	3	-101	193	-209	160	70	147	252	317	-275	332	-87	-143	414
					(26.0)					(21.8)					(26.3)				(17.6)
Total NDCF	1021	1038	1305	1601	1714	1967	1853	1999	1810	1846	2324	2649	3014	4088	4959	6831	7532	6253	8705
		17	268	195	213	253	-114	246	-189	36	478	325	365	1074	871	1872	701	-1279	2452

Notes: 1. Figures in the second line for each industry group represents annual change (+/-)
2. Figures in brackets refer to 5 year average percentage share of each industry group in total NDCF in the public sector.

Table 7: GDS/GDP and NDS/NDP (@Current Prices) in Public Sector and Total Economy (per cent)

Year	Public Sector		Total	
	GDS/GDP	NDS/NDP	GDS/GDP	NDS/NDP
1950-51	1.76	1.33	10.20	7.05
1951-52	2.51	2.13	10.02	6.69
1952-53	1.49	1.06	8.26	4.46
1953-54	1.22	0.79	8.83	5.28
1954-55	1.56	1.08	10.88	6.76
5 year average	1.71	1.28 (21.09)	9.64	6.04
1955-56	1.68	1.06	13.94	10.0
1956-57	1.95	1.42	13.53	9.82
1957-58	2.04	1.50	11.43	7.28
1958-59	1.69	1.20	10.49	6.10
1959-60	1.69	1.21	12.63	8.29
5 year average	1.81	1.28 (15.99)	12.40	8.30
1960-61	2.83	2.16	13.74	9.29
1961-62	3.09	2.39	13.10	8.44
1962-63	3.31	2.52	14.48	9.54
1963-64	3.61	2.89	14.38	9.78
1964-65	3.55	2.79	13.61	9.23
5 year average	3.28	2.55 (27.56)	13.86	9.26
1965-66	3.36	2.59	15.73	11.20
1966-67	2.41	1.55	16.31	11.85
1967-68	2.07	1.15	13.93	9.56
1968-69	2.58	1.65	14.12	9.52
1969-70	2.80	1.85	16.40	11.82
5 year average	2.64	1.76 (16.25)	15.30	10.80
1970-71	3.11	2.11	16.84	12.0
1971-72	2.95	1.86	17.30	12.45
1972-73	2.78	1.64	16.23	11.29
1973-74	3.07	1.93	19.33	14.95
1974-75	3.85	2.98	18.19	13.81
5 year average	3.15	2.10 (16.31)	17.57	12.90
1975-76	4.50	3.56	20.01	15.39
1976-77	5.12	4.13	22.01	17.43
1977-78	4.53	3.44	21.61	17.02
1978-79	4.77	3.65	23.93	19.21
4 year average	4.73	3.70 (21.51)	21.89	17.26

Source: Same as Table I.
Note : Figures in brackets are 5-year average shares of Public Sector NDS in total NDS.

Table 8: NDS/NDP by Type of Authority (in per cent)

Year	GA*	NDUs
1950-51	1.24	0.09
1951-52	2.05	0.08
1952-53	0.92	0.14
1953-54	0.62	0.17
1954-55	0.86	0.22
5 year average	1.14	0.14
1955-56	0.85	0.21
1956-57	1.15	0.27
1957-58	1.14	0.37
1958-59	0.84	0.37
1959-60	0.83	0.38
5 year average	0.96	0.32
1960-61	2.03	0.08
1961-62	2.41	0.02
1962-63	2.52	0.00
1963-64	2.75	0.14
1964-65	2.73	0.06
5 year average	2.50	0.05
1965-66	2.37	0.22
1966-67	1.55	-0.00
1967-68	1.17	-0.02
1968-69	1.72	-0.07
1969-70	1.79	0.05
5 year average	1.72	0.04
1970-71	1.93	0.18
1971-72	1.81	0.05
1973-73	1.50	0.13
1973-74	1.72	0.21
1974-75	2.35	0.63
5 year average	1.86	0.24
1975-76	3.24	0.32
1976-77	3.30	0.83
1977-78	3.01	0.43
1978-79	3.10	0.55
4 year average	3.16	0.54

Source: Same as Table I.

* including operating surplus of departmental undertakings.