THE NATURE OF SERVICE SECTOR AND IT'S GROWTH IN INDIAN ECONOMY

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INTRODUCTION

"The economics of tertiary industry remains to be written. Many as yet feel uncomfortable about even admitting their existence", wrote Colin Clark in 1940. The comment, by and large, rings true even now.

There was a time when the tertiary industry (i.e. the Service Sector) was not considered 'productive' at all. In Chapter I, it is proposed to make an historical overview of the place accorded to the Service sector, in the economic literature. The Service sector now is being increasingly integrated with the other sectors, in its analytical aspects. But still, there remains a certain amount of enigma attached to it. The reason being that the Service sector has certain peculiarities, which are difficult to comprehend. Therefore, the next step would be to examine the characteristics and peculiarities of the service industries.

The peculiarities of the Service Sector lead to great many problems in the measurement of output. In Chapter II, it is proposed to explore this aspect. A brief review will also be made of the method of measurement of Service sector activities in the Indian economy.

India has been on the path of Planned economic development since 1950. Service Sector plays an important role in the developmental process because it provides the

infrastructural facilities. In Chapter III, we would concern ourselves with the contribution of the Service Sector in the Indian economy. This would express itself in many facets. It is proposed to examine the contribution of Service sector to the Net Domestic product for the last thirty years. Connected with it is the rate of growth of Service sector as compared to other sectors.

More over, how has the employment of Labour and Capital changed over last thirty years in the economy and especially in the Service sector? These changes would have an important bearing upon the Labour and Capital Productivities, which would also be examined. Other pertinent questions which would be explored are the Linkages of the Service sector with the rest of the economy. The public services play an important redistributive part in an economy and these would also be scrutinized.

CHAPTER I

HISTORICAL OVERVIEW

1.1 An economy is generally divided into three sectors, which are, the Primary, the Secondary, and the Service Sector. The Primary sector consists of the Agricultural and allied activities. These activities have a common characteristic that the role of natural resources is very important in their functioning. The Secondary sector consists of the manufacturing activity, where the material inputs are reproducible. The Service sector consists of the rest of the economy. This includes Trading, Banking, Professional services, Administrative services, defence etc.

It may be pointed out that the importance of each of the sector in the economy has varied over the last four centuries. In the 17th Century, the mercantilists thought that the foreign trade sector had a central role to play in the economic progress of the country. Then this role was bestowed on the Agricultural sector. With the advancement of the Industrial Revolution, the Secondary sector was also included in the determinants of economic progress. Service sector was, by and large, considered as a drain on the economic progress. But Adam Smith included Trade and Transportation in his concept of the productive activities. Marx defined the productive

activities in an entirely different way, depending on the organization in which the activity is carried out.

In what follows, it is proposed to take a brief historical overview of the attitudes of different schools regarding the different sectors.

1.1.1 Historical overview

Mercantilists, of the 17th Century gave tremendous importance to the foreign trade sector. They believed that a favourable balance of trade is desirable because it leads to national prosperity, which was thought of in terms of gold. A favourable balance of trade was supposed to be a source of stimulus to other sectors and that it was capable of solving the economic problems like unemployment, existing in that period. Industrial sector was important, not for its own sake but for the purpose of increasing exports and hence, as a way to favourable balance of Trade. Therefore, industry was promoted by inducing cheap raw materials imports and exporting at prohibitive prices. Agriculture was important because it provided subsistence to the labour, but service sector was considered a dependent and non-productive sector.

Physiocrats, believed, that only Agriculture yielded 'net product'. Net Product is defined as the excess of wealth produced over and above what is required to produce it.

In Commerce, they said, we produce nothing but only

transfer the already produced commodity from one hand to another. In Industry, the artisans simply combine or rearrange the raw materials and hence produce no surplus wealth i.e. wealth produced is equal to wealth consumed in Industry and commerce.

Quesnay said that the rest of the economy, except agriculture, belonged to the "Sterile Class". Turgot called it the 'Stipendiary Class'. But this does not mean that they thought of the rest of the economy, except agriculture as useless. The necessity of the other sectors was realized. Bardea has written, "far from being useless, these are the arts that supply the luxuries as well as the necessities of life and upon these, mankind is dependent both for its preservation and for its well-being".

Nevertheless, they did think of the industry and service sector, as not contributing any net additions to the wealth, which occured due to the circularity of the production process in them.

Adam Smith, the first of the great classical Economists realized that the Physiocratic notion of Net Product is too limited. He came forward with the idea of 'productive labour' which resulted in the 'productive activity'. But he was not very clear with the idea of productive labour and used three criteria for defining it.

The first was that the productive labour produced a marketable, material product. That is, the productive

labour should produce tangible and vendible good. He said that the goods are superior to service because goods are durable while services perish. But this is clearly incorrect because some services have a lasting impact like medical and educational services. According to this criterion, only Agriculture and Industry became productive activities.

The second criterion which he used was that the productive labour produced a commodity whose price could command a quantity of labour equal to the labour necessary to produce it. This view was mainly advanced to attack the Physiocratic position regarding productive labour. Smith argued that industry is productive because its receipts are sufficient to pay wages and to replace the worn-out capital. Thus as long as the labour and capital were capable of replacing themselves, the activity was productive.

The third criterion, given by Smith is the same as Marx's 'Surplus value' criteria and will be dealt with later.

It can be observed that according to the first criterion, the Service sector is unproductive, though 'useful'. But Smith was willing to make an exception in the case of Trade and Transportation. His argument was that since these two activities make utilization of material product possible, they should be included in the productive

activity.

Malthus had similar views as Smith's first criterion. His position can be summed up as "that the labourer and a menial servant are two instruments ... used for purposes distinctly different, one to assist in obtaining wealth, and the other to assist in consuming it".

Marx has written elaborately on the nature of Productive labour and his analysis is markedly different from his predecessors.

It can be observed that the pre-Marxian economists were not willing to call the service sector as 'Productive', though they called it 'useful'. The difference between these two is vital for the understanding of the classical position. This has been brought out very well by Marx.

Before explaining his own ideas, Marx has criticized the Physiocrats and Adam Smith for their positions regarding the Productive labour. He says that, "Physiocrats maintained the correct view that only labour which can produce surplus value is productive; they were wrong in saying that only Agricultural labour creates surplus value". Physiocrats believed that Agricultural labour is productive because farmers produce grain which is over and above of what they can consume, but then, questioned Marx, a clothmaker produces cloth which is over and above his needs, but he is not considered as productive labour.

Marx criticizes Adam Smith for holding a two sided

approach on the problem of Productive labour. The first approach is the correct approach, which is the same as Marx's approach. The second and the mistaken view (according to Marx) is that the unproductive labour" does not fix or realize itself in any particular subject or vendible commodity" (Smith). On the contrary, "his services generally perish in the very instant of their performance, and seldom leave any trace or value behind them for which an equal quantity of service could afterwards be produced" (Smith).

Now it is proposed to elaborate on the Marx's position. Marx distinguishes between the Productive and Unproductive labour, from the point of view of the Capitalist. He says that the labour which is capable of producing 'surplus value' for the capitalist is the Productive labour.

To explain it further, in the Capitalist mode of production, the Capitalist buys the labour power in exchange for capital (i.e. money), and he applies this labour power to the raw materials, machinery etc., to obtain capital which is greater than what he originally had. If originally, he had capital with the value (C+V), after the applications of labour power, he will have (C+V+S)*, where S is the surplus value. Surplus value is

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* C - constant capital, V - Variable capital, S - surplus value.

created by the labour power, but it is appropriated by the Capitalist. That is, the labour power produces value equivalent to V+S, but it is paid only V and S is kept by the capitalist.

Marx says that, all types of labour which do not produce 'surplus values', are non-productive labour. According to him, there is no particular 'Kind' of activity which is either productive or not so. Rather, this nature is defined by the organisation of production which exists in it. Therefore, there is a lot of difference between a tailor working under an enterpreneur, and a self-employed tailor, even if both of them are earning the same amount of money. A tailor working under enterpreneur is selling his labour power for particular wages. The enterpreneur is applying this labour power to get surplus value for himself. Therefore, in such a case both variable capital and surplus capital are created.

When a self-employed tailor is engaged by a client, he charges for his labour power and that is all. No surplus value is created. In Marxian terminology, in the earlier case, a 'commodity' is created, and in the latter case, 'use value' is created.

But one fails to see, as to why the same logic is not applied to the independent handicraftsmen or peasants who employ no worker. With respect to this category of labour, Marx seems to have changed his position. First of

all, he declares that this type of production does not belong to the capitalist mode of production (without giving adequate reasons). Then he says that, in the case of peasants or handicraftsmen who are not employing any labour, surplus value is nevertheless created. This is because, the peasant can be split up into two parts - one when he is a capitalist and second, when he is a labourer. The capitalist in him exploits the labourer in him. The surplus value is kept by the capitalist and the labourer is paid only the variable capital. In this way, the peasant turns out to be productive labour.

It looks that the Marxian position is logically inconsistent. Clearly, the above mentioned argument of 'splitting up', can be applied to the already mentioned, self-employed tailor. In that case, he too would become productive labour.

Marx seems to be suffering from the Smithian hangover of 'vendible commodity' criteria. It must have been too much for him to say that a self employed peasant producing grains, is unproductive labour. Thus, he seems to have made this compromise.

The Marxian position ultimately boils down to this - All material production, whether under capitalist system or not, leads to productive labour. In case of 'immaterial production', the existence of productive labour would depend on the type of organization. In case of capitalist

organisations, where an enterpreneur and workers exist, since 'surplus value' is created, the labour of workers is productive.

In cases where surplus value is not created, the worker is unproductive.

The unproductive labour is creating 'use-values' and it is useful. The productive labour creates ' 'commodities', which is something, over and above of 'use values'.

Economic and Non-Economic activities

In the present period dominated by the Neo-classicals, no longer is the Service sector called as unproductive. In fact, the whole criteria of differentiation has changed. We have the Economic and the Non-Economic activities in an economy. Economic activities lead to the production of goods and services, with the help of limited resources, which have a definite 'economic value'. A good or service has a 'economic value' when someone is paying for it. Therefore, Government services also have an 'economic value' because the taxpayers are paying for it. Similarly for the activities of the Philantrophic Institutions, the donars are paying for it.

Non-economic activities consists of production of goods and services, which though satisfy human wants, do not possess 'economic value'. Therefore, the work done by family members for each other, hobbies etc. come under

non-economic production.

It would not be fair to attribute the differences amongst economists, at different points in time, to their naivety. It is more appropriate to treat each of the above mentioned views as reflecting the economic reality of that time.

The fact is that in a predominantly agricultural society, with the standard of living low, where most of the consumption consists of foodgrains and in such an economy with narrow resource base, the services do look to be a drain on the economy. It is only when the resource base of the economy widens, chiefly due to industrialization, there is surplus which is created. In the initial stages of industrialization, the surplus is not large and most of it is spent in buying the industrial output itself, while the remaining small amount is spent on service sector goods. Therefore, in the Agricultural economies and in the economies in the initial stages of industrialization; the demand for service sector goods is very low, because people cannot really afford to buy these goods. Only in the advanced stages of industrialization where sizeable amount of surplus is created, the consumption of service sector goods rises tremendously. In a backward economy, a chair cannot mean anything more than rearrangement of wood. It is only under prosperous conditions that the quality, comfort and beauty of a chair matter. Concepts

like 'usefulness', 'necessity' etc. are held commonly in a society and economists being members of the society are subject to them. Thus the importance given to service sector changed, as the economic reality of the times changed.

1.2 It is now proposed to examine the chief characteristics of the service sector.

(a) The first characteristic of the Service sector is that it is close to the consumer (Fisher, Clark). What they had in mind were the professional services like lawyers, doctors, teachers where the buyer and the seller come into physical contact with each other. These are the cases of highly personalized services, where the services have to be consumed as soon as they are produced. In such situations, a better participation by the consumer can improve the quality of the output. For example, if a student pays more attention in the class, the quality of teaching in the class will improve i.e. the output of the teacher will improve. (G.B. Thomas).

But this 'closeness' is not a characteristic of all the activities belonging to the Service Sector. In fact, we can divide the Service sector activities into Intermediary and Final activities. As a classificatory device the 'Type of Buyer' can be used (Stigler (1)). Intermediary activities would be those serving chiefly business. Therefore, it would include advertisement

activities, transportation of goods, etc. Final activities would be those serving the final consumer i.e. hotels, professional services etc.

(b) Labour intensity is supposed to be another characteristic of the Service sector.

Though most of the Service sector activities are labour intensive, there are some which are not eg Transport and Public utilities. For the purpose of homeogeneity, many economists prefer to leave out either one or both the activities from their study. For example, B.M. Deakin and K.D. George, Victor Fuchs (1) and Stigler (1) have not included these activities in the service sector. Stigler says that he has excluded these activities because their "characteristics are sufficiently peculiar so that in any event they deserve separate analysis".

(c) Intangibility is an important characteristic of the activities belonging to the service sector. This means that the output of the service sector does not have a physical existence. Due to this, the output can't be stored. It is consumed as it is produced. There is a sense of immediacy about the services. This is an important characteristic of the service industries (V. Fuchs (2)).

(d) Generally, it is observed that the physical strength is less important in the service industries. This can be a reason for the high proportion of employment of women in service industries. (Barkins, Kuznets (1)).

(e) In case of certain activities there is a special relationship between the seller and the buyer. For example, in case of a doctor, the seller (i.e. the doctor) himself tells the buyer (i.e. the patient), what he should buy (G.B. Thomas).

(f) Due to the personal nature of many of the service sector activities, there is a disproportionately large number of self-employed in it. Therefore, many services are provided by small organizations (Stigler (2)).

But on the other hand, there is a tendency for small individual family enterprise giving way to large and modern business units. For example, retailing which is usually managed by a family, is giving way to Departmental stores (Barkins, L.).

(g) There is a large number of non-profit making organizations which belong to the service sector (G.B. Thomas, Fuchs V (2)).

(h) Usually, the minimum level of education that is required in the service sector is greater than that required in other sectors (Stigler (3), Barkin, S.).

1.2.2 Inspite of these characteristics, there continues to exist a certain amount of haziness associated with the scope of the Service sector. Stigler (4) wrote, "There exists no authoritative consensus on either the boundaries or the classification of the service industries". There is no hard and fast division of the sectors and different

economists make use of different definitions, depending on their own philosophies.

Some of the non-controvertial activities which are included in the service sector are Trade - wholesale and retail, finance, insurance, real estate, professional, personal, business, repair services. Activities which are controvertial i.e. sometimes included and sometimes excluded are Transportation, Public utilities.

CHAPTER II

MEASUREMENT OF THE OUTPUT IN THE SERVICE SECTOR

2.1 There are two purposes for the estimation of output originating in the service sector. The first purpose is to find out the contribution of the service sector in the economic welfare of a country. Secondly, estimation of output helps us in finding the productivity and utilization of resources in that sector. (J.L. Nicholson (1)).

Therefore, to understand the role of the service sector in the economy, the output of the service sector has to be quantified. There are two concepts of output; one is the end product of the production activity, usually termed simply as 'output' and the other is the 'net output' i.e. value added arising out of the Service sector. In this chapter we examine the difficulties in measurement of the output and how net output is estimated in India for National Income purposes.

2.2 It is proposed to deal with the difficulties in defining the end product of the Service sector, in general, and later on deal with the specific sectors.

2.2.1 One of the peculiarities of service sector output is its intangibility (Marimont M). The output of service sector does not consist of tangible goods like wheat, T.V. sets, watches, etc. As there is no tangible end product, it becomes difficult to define the unit of output, in many

service industries. While in sectors like Transport and Communications a measure of output can be devised, in sectors like Health, Education etc. it becomes extremely difficult. In case of Service sectors which are in the nature of collective consumption like Government Administration and Defence it almost becomes impossible to define the end-product.

Moreover, it can be noticed that many services like defence, voluntary organizations, Administration etc. do not enter the market-mechanism at all. In such a situation, it is difficult to measure output by value, since the value is not known.

Changes in Quality are generally difficult to incorporate in output even in the case of tangible goods and the problem gets compounded in the case of Service sector. For example, would it be correct to say that one unit of a doctor's service is one visit to the doctor by the patient? If we assume that it is so then it is likely that due to medical advances, for the same illness, a patient has to go fewer number of times to the doctor. In such a case, it would lead to underestimation of the doctor's services, when there has been no such thing in reality.

Then there are chances that the output of a Service sector industry is affected by certain extraneous factors. For example, the output of education is highly influenced

by the general availability of books, audio-visual equipment etc. Similarly, the output of medical care industry i.e. Health, is influenced by environmental factors. It is not possible to separate out these factors while measuring the output.

2.3 Five service sector industries have been selected for examining the specific problems of measurement of output. Two of them belong to the personalized services i.e. Medical care Industry and Education Industry, to give us a feel of the problems pertaining to such services. The other two industries are dealing with commerce i.e. Banking services and Retailing services. The last one pertains to collective consumption i.e. the Government Services, whose importance is undisputed. Moreover, the Government services have a peculiar characteristic that they do not enter the market mechanism. For each of the industries, first of all, the attempts at identifying the output will be examined. Such an exercise will bring home the difficulties in identifying the intangible output. The next step would be to examine the difficulties in the measurement of the output. This would be followed by a note on the estimation of net output of these industries in the Indian context.

2.4.1 Medical Care Industry
Identification of the Output

What does Medical care industry produce? It can be said that it produces Health. Health has been defined in

many ways. The world Health Organisation has defined Health as "A state of complete physical and mental and social well-being" (Constitution of the World Health Organization, Annex I, 1958). Efragcon Roberts (1) defines it as "the absence of, or the ability to resist disease and death".

There is one great difficulty in defining 'Health' as an output of Medical Care Industry. It is that the general environmental factors and consumption patterns also affect the 'health' in the society. Factors like diet, pollution, clean drinking water etc. have tremendous impact on health, but they are not provided by medical care industry as such. S. Fabricant (1) is of the view that there is a danger of bypassing a lot of real costs, which are incurred by the public in maintaining a given state of Health. The real costs would consist of other preventive and maintenance activities. Furthermore, he adds, it is impossible to measure the contribution of households in creation of health, but which is bound to be substantial.

Therefore, 'Health' as an output of Medical Care industry poses many problems.

Victor Fuchs (3) has defined the output of Medical Care industry, in another way. He says that the types of output which are produced by the Medical Care industry are as follows -

(a) Contribution made in creating health,

(b) Physicians provide a 'Validation Service' i.e. an evaluation of a person's health by the doctors which is usually needed by some third party,

(c) Consumer services provided along medical care i.e. hotelling aspect of hospitalization.

This happens to be the most comprehensive definition of the output of the Medical care Industry.

2.4.2 Difficulties in the measurement of output

Victor Fuchs (4) says that the Medical Care Services can be defined as the services rendered by

1. Labour - personnel engaged in Medical occupations, such as doctors, nurses, wardboys, etc.
2. Physical Capital - Equipment used by the labour e.g. surgical equipment, X-ray machines etc.
3. Intermediate goods and services like drugs, purchased laundry services etc.

But certain difficulties arise out of this definition. There are chances of some health related activities being left out e.g. better sewage system etc. Moreover, a part of the activities of the health personnel consists of 'hotel services' like staying in the hospital because adequate rest may not be available at home. Strictly speaking, such activities do not belong to the health services and should be subtracted from it. Another

problem is added because in case of certain illnesses the duration of hospitalization could have decreased due to advancement in the medical science, but in certain other cases it could have increased due to environmental factors (M.W. Reder (1)). It can also be observed that the Medical care industry has certain peculiarities and these tend to tamper with the operation of market mechanism. For example, the quality and quantity of the product which should be bought by the buyer (i.e. the patient) is suggested by the seller (i.e. the doctor) himself. The consumer is usually terribly ignorant about what he is buying (M.W. Reder (2)).

Secondly, in some industries where there is a danger of consumer ignorance, the consumer is protected through the competetive behaviour of the producers. In case of Medical Care Industry, the competetion is very low because, first of all, the entry is severely restricted in the form of admission to medical school. Secondly, Advertisement is forbidden due to code of ethical conduct (M.W. Reder (2)).

Thirdly, Medical Care is one of the industries which people believe should be distributed according to need rather than demand (i.e. ability and willingness to pay). Therefore, on one hand, there are private individuals and institutions which supply Medical Care, on the other hand Government also supplies it. The

Government supplied Medical care is usually subsidized (Ofer (1)).

Therefore, because of these obstacles in the functioning of market mechanism, it is not correct to equate, the output of the Medical care industry, with the expenditures made in it, which is what is done.

Another important difficulty in the measurement of the output of Medical care industry is that the qualitative changes are hard to incorporate in the output. Improvement in quality would mean that for the same amount of input, the quality of output is better. But the output of Medical Care Industry is estimated on the basis of cost itself (i.e. the expenditure made in it). Therefore, in the cases where the input has not changed, but where there have been changes in the quality, the output of the industry would be the same as before (Klarman (1)).

2.4.3 Measurement of the Net output of Medical Care Industry in the Indian Economy *

For measuring the contribution of Medical Care Industry to the National Income, the method of factor payment is adopted. The value added is estimated separately for Public and Private counterparts. In case of Public Sector medical and health services, the expenditure on

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* Source: For the expositions regarding the Measurement of Net output in the Indian Economy, we rely heavily on National Accounts Statistics : Sources and Methods, April 1980.

wages and salaries of doctors and other medical staff as obtained from the budgets of the Central & State Governments, and these are taken to be the Value Added estimates.

For the Private Sector the following method is used. The contributions to gross product per worker are determined on the basis of data contained in the N.S.S. Report, "Tables with Notes on surveys of self employed households in Non-Agricultural Enterprises, 1974-75", for rural and urban areas separately and adjustments are made for depriciation. To obtain estimates for other years, the base year estimates of the value Added are taken forward to other years, with the help of an index number of consumer prices for urban non-manual employees and an index of wages of rural skilled workers for urban and rural areas respectively.

2.5 Education

Education is a many-faceted activity, consisting of different types like school education, higher education, vocational training, Research etc.

2.5.1 Identification of the Output

Wagner (1) has defined the output of Education as "the furtherance of civilization" i.e. encouraging the rediscovery of man's highest creative achievements, making new discoveries and questioning the old ones. Related activity is that of Research i.e. discovery of new knowledge plus restricting and application of existing knowledge.

Atkinson (1) says that the most obvious function

of educational institutions is to provide teaching and this gives rise to several outputs. The first is that it helps select people for subsequent employment. Higher education acts as a filter. Secondly, knowledge is the main output of teaching.

2.5.2 Difficulties in the measurement of output

The end product of education can be conceived as the 'knowledge' which is being imparted to the students. How does one measure the 'knowledge'? It is suggested that tests should be given at the end of every academic year to measure the knowledge. (Vaizey J. (1)). But this has two problems. First, the performance of a student in the test would depend on his own capacity and also on the teaching given. How can we separate these two effects. Secondly, how can the results of tests given in two different faculties be added?

Another method for measuring the output of education is to link education with the earnings of a person receiving it. (Blaug M.). Generally, it is observed that the more highly educated a person, his earnings will be higher, cet. par. The argument is that the more educated a person, the more will be his productivity and therefore he will earn more. Therefore, the output of education is the rise in productivity coming about due to it.

But this argument has been questioned and the

'screening hypothesis' has been put forward (Atkinson (1)). It says that the output of education is that it has provided the employees with a 'selection criteria', i.e. education helps employers in rejecting and accepting people on the basis of their education.

Another problem arises because a large percentage of the output of education is not sold in the market because the Government supplies it. Hence the market values are not known. Therefore, the output has to be valued at cost. This assumes that the education system is adding nothing to the inputs that it receives. This is obviously not true (Vaizey J. (2)). Furthermore, how do we measure the education that is imparted at the family level. Family plays an important role in the education of children, not only in the sense of time of the parents but also the expenditure like books, pencils etc. (Atkinson (2)).

There is also a problem regarding the 'In-service' training which is imparted in the firms. This is an important output of education which is difficult to measure (Atkinson (2)).

2.5.3 Measurement of the Net output of Education Industry in the Indian Economy

For this sector the value Added is taken to be the sum of total wages and salaries of teachers and other staff employed in educational institutions and the secondary income arising from educational services. For the

recognized educational institutions, this information (except for the secondary occupations) is available in the "Education in India", published annually by the Ministry of Education.

It has been assumed that the contributions of the people working in unrecognized institution, and those having secondary occupation in the educational services forms 2% of the Gross Value added from recognized institutions.

2.6 Banking sector **

2.6.1 Identification of the output

The main activities of the Banks consists of accepting savings from households and Institutions, making loans to them, investing their own funds in different ways, transferring money from one account to another, as and when instructed. Banks are, in the true sense of the term, an intermediary between the lenders or the savers and the borrowers. Thus the Banks provide services for the depositors as well as debtors. To define the end product of the Banking sector is beyond our comprehension. Even defining the net output is beset with difficulties.

** For this exposition we rely heavily on -

1. Gorman J.A. (1969)
2. Yntema D.R. (1948)
3. Speagle & Silverman (1953).

2.6.2 Difficulties in the measurement of Net Output

Banking sector creates peculiar difficulties in the measurement of even the Net output.

When the usual procedures of National Income accounting are applied to the Banking Sector, it creates certain difficulties. It is known that under the usual procedure, the interest, is a part of the output of the paying firm and not of receiving firm. When this procedure is applied to the Banking sector, the output of Banking Sector becomes zero or negative. This is because when we calculate the Value Added of the Banks, we have to take the Net Payments made by it (or otherwise it would lead to double counting). Therefore, first we calculate the 'Net Interest Paid', by substracting the Interest Received from Interest Paid. We see that Net Interest Paid comes to be negative for the Banking Sector because the Banks do not pay whole of the interest received to the depositors. To this negative Net Interest Paid, we add the wages and Profits paid out by the Banks. Now, the sum of wages and profits paid by the Banks will be less than the Net Interest paid, to the extent of the material input consumption, as can be illustrated by the following example.

Receipts		Expenditure	
Interest Received	150	Interest Paid	40
		Raw Materials, other services etc. used up	30
		Wages	30
		Profits	50
	150		150

From this table we see that the Net Interest paid is 40 - 150 = - 110, a negative figure. The expenditure side should add up to 150 i.e. equivalent to the Receipts side. The sum of wages and profits cannot be equal to the Net Interest paid, because of the Raw Material etc. used up by the Bank. Therefore, the output of the Bank, in this case turns out to be Net Interest paid plus wages plus profits i.e. - 110 + 30 + 50 = - 30 i.e. a negative figure. If the Raw Materials etc. used up by the Banks are zero then the output of the Bank would also become zero.

Therefore, under this system of keeping the interest with the paying firm, the output of the Banking sector would be negative or at best zero; but never positive.

Now this seems rather unacceptable. The Banking Sector is certainly performing useful functions and adding to the services enjoyed by the people. We can simply argue that if Banking were a drain on the economy, it should vanish in the Long Run (in absence of Permanent Governmental Subsidy). Therefore, the method that is applicable to the other sectors, cannot be applied to the Banking Sector.

A new method for calculating the output of the Banking Sector is used, which imputes explicitly, the service charges levied by the Banks, for the services it has rendered. This is called imputation method.

Imputation Method

This method assumes that the services of the Banking Sector are made for the depositors and not the borrowers. The validity of this assumption is, of course, questionable, because an important part of the Banks' activities does consist of lending money.

The 'imputation method' is as follows. We find the difference between the interest Received and Interest Paid and call it the 'Imputed Service Charges'. This is because though the Banks provide services to the depositors, it does not charge them explicitly for its services. What it does is that, it keeps a part of the Interest Received with itself, instead of explicitly charging the depositors with service charges. Therefore, instead of first paying the depositors, the full amount of Interest Received and then taking a fraction of it as service charges, the Banks adopt a short-cut method. The imputed service charges are reallocated between the different sectors according to the proportion of deposits held. Ultimately, it means that only the income imputed on deposits of individuals gets included in the National Income. The Income imputed on private business deposits will cancel in all industry

summation, because the Service Charges will be on the debit side for the private business but on the credit side for the Banking Sector. Therefore, they will get cancelled. Therefore, we see that the Banking sector has certain very peculiar difficulties in the measurement of its output. These difficulties are overcome by deriving an entirely new method of measurement of output.

2.6.3 Measurement of the output of Banking Sector in the Indian Economy

To calculate the value added in Banks and similar financial institutions, the service charges are imputed and added to the charges actually received. The imputed service charges is measured as an excess of interest received by Banks on loans and other investments made from the deposits they hold over the interest they pay out to the depositors. For the Commercial Banks, the source of data is the "Statistical Tables Relating to Banks in India". For the Banking Department of RBI, the source of data is the "Reserve Bank of India Annual Report".

The imputed service charges in case of enterprises are to be deducted from the value added of enterprises and in case of Households who are depositors their final expenditure is to be increased by the amount of imputed charges.

2.7 Retail Trade -

2.7.1 Identification of the output

The Retailing activity provides a vital link between

the wholeseller and the final consumer. The Retailing trade provides the services of getting the product geographically near to the consumer, packaging it, providing after sales services etc. The goods delivered by the retailer can not be considered as the output of retail activity as most goods produced in the economy have to pass through retailers and the end product of retailing activity is really intangible.

2.7.2 Difficulties in the Measurement of output

The real output of retail trading is sought to be measured by measuring the real quantity of goods sold by the retailers. The first step in measuring the output is the grouping of stores into different store types, like 'clothing stores', medicine stores etc. Then we find the

$$\text{Gross Margin percentage} = \frac{\text{Total sales} - \text{Cost of Goods sold}}{\text{Total sales}}$$

This is the service per unit of money of sales of a 'store type'. If we multiply the Gross margin percentage of a firm with its Total sales, we will get the output of the firm (Schwartzman (1)). This method assumes that the quality and the quantity of the services sold by the firms remains the same over a period of time or cross-sectionally. But certain aspects of retailing would vary over a period of time and also cross-sectionally. They are

1. There can be a change in the terms of sales like credit terms, replacement of parts, repairs etc.
2. There can be changes in the sales personnel and

sales techniques like more efficiency, courtsey etc.

3. Demands made on consumer may change, like time and effort required to accomplish purchase by the consumer etc. (Fuchs (5)).

These changes may not lead to changes in the costs and hence may not affect the output of the retailing shops. But in reality, the quality of output has changed and it will not be reflected in the output.

It is known that supermarkets usually have lower margins and small shops have higher margins. In such a case, can lower margins be interpreted as an evidence of greater efficiency or as an indication of less services offered and hence less output produced by the shop (Fuchs (6)).

Usually it is observed, that there is a redivision of services provided by the retailers and by the manufacturers, as there is rise in the income of an economy. When the incomes rise, the retailers start providing better and more services like the general get-up of the store improves, more shops are airconditioned etc. But then they do less and less of prepackaging, labelling which is now done by the manufacturers. This redivision may not be accounted for in the costs (Fuchs V(7)). Another conceptual problem is that of treatment of changes in the size of transactions. Suppose that the number of

transactions and everything else remains the same, except that each consumer buys twice as much in each transactions than before. Then according to an earlier method, the real output of the retailing has doubled. But some economists* have argued that the increase in the size of transactions, normally does not proportionately increase the input. Therefore, if input increases at less than proportionate rate then the output of the retail ~~made~~/trade will increase by more than twice. Therefore, it is argued that the number of transactions should be taken into account, in some way, to get a better estimate of the output.

2.7.3 Measurement of the Net Output of Retail Trade Industry in the Indian Economy

Retail Trade can be divided into Registered and Unregistered Trade.

1. Registered Trade

The estimates for retail trade are prepared i.e. the value Added per worker (after allowing for Secondary workers) by obtaining the results of the distributive trade surveys, carried out in the eight states.** These surveys are carried out under the perview of the Sales

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* Margaret Hall and Don Knapp, "Productivity & Distribution with Particular Refume to the Measurement of Output", in Productivity Measurement Review, 1957.

** A.P. (1971-72), Delhi (1969-70), Gujarat (1968-69), Haryana (1969-70), Maharashtra (1968-69), Orissa (1969-70), T.N. (1964-65), U.P. (1971-72).

Tax Act, but they do not have the same reference period. Therefore, the estimate per worker as available from these reports have to be brought backward or forward to the base year. The weighted average of the value added per worker is found for the eight states and it is used for the All India estimates.

For finding the employment, we use the method of using the average proportion of the workers engaged in registered trade and total number of workers in the sector (i.e. Trade, Hotels, Restaurants) for the states of Haryana and A.P. and use it for all India estimation.

2. Unregistered Trade

N.S.S. data are available for the year 1969-70 in the NSS report No. 221, "The Tables with Notes on some Features of Household Non-Registered Trade'. The Value Added is brought forward for rural and urban areas separately. The number of workers in unregistered trade is obtained as a residual using the corresponding number in registered trade and the total available from the census data.

2.8 Measurement of the output of the Govt. Services

2.8.1 Identification of the Output and difficulties in the measurement of the output

Government services refer to the various administrative and other public agencies, which are not engaged in commodity productions. Their greatest peculiarity is that they are not exchanged in the market.

The relationship between the portion of the production which is reflected in money transactions through the market and the portion which is not so reflected, changes from time to time and from country to country (Colm). Therefore, if intertemporal and intercountry comparisons of National Income have to be made, then it would be quite misleading to exclude the services which are not bought in the market. Hence it is essential to make an estimate of the contribution of Government services, to the National Income of any country.

Some of the services like Public Utilities etc. are provided by the Government because by and large it is accepted that the Government can render them in the most efficient way. More over, for some services the private enterprise may not be willing to undertake them because of the peculiar nature of costs.

As already mentioned, the Government services usually are not exchanged in the market. Therefore, the value of the output of the Government services is calculated at its cost. This assumes that the Government services are not adding any value over and above the costs, to their services, which is a questionable proposition. The fact that the Govt. does not charge explicitly for its services leaves no option but to calculate the value of output at cost (Ezekiel H(1)).

Another problem, related to the above mentioned,

is that of the identification of the Intermediate and Final output of the Government. It is essential to separate the both in order to avoid duplication. This difficulty led to the historic debate between Hicks and Kuznets.

Hicks[1] suggested that the whole of the Government, product should be valued at cost and be included in National Income. The justification he gave was that it is impossible to separate the final and the intermediate Government product. He urged that the duplication arising out of it has to be accepted.

Kuznets[2] argues that such an inclusion is possible only under the assumptions "either that all Government activities are devoted to providing goods to ultimate consumers qua consumers" or "that the Government is somehow conceived as an ultimate consumer itself". We know that the first is wrong and the second is unacceptable. Therefore, Kuznets concludes that the inclusion of the whole of the Government product leads to double counting. But this need not be so. This is because, if the intermediate products of the Government are not entering the costs of the business firms, then there will be no double counting. The value of the Government intermediate

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1. Hicks J.R. - 'The Valuations of the Social Income' Economica 1940, page 118.

2. Kuznets - 'National Income : A New Version', Rev. of Econ. & Statistics, 1948, page 156.

products do not enter the costs of the business firms, when they are sold free. Kuznets[1] raises an objection at this point. He argues that suppose a good A is purchased by the Government and then it is passed on gratis to the business firms, who do not have to pay anything for it. But it is just likely that somebody else is paying for it, say B, C, D and including the cost of A, in the price of the commodity which they (B, C, D) are producing. "Hence, so far as A is a product absorbed in uses other than ultimate consumption, the fact that it was purchased by the Government not for resale does not prevent duplication if it is included along with B, C, D". - Kuznets[1]. The way in which somebody else pays for A is via taxes.

It is surprising that Kuznets should put forward this argument, because it contradicts with his approach towards National Income. According to him, National income excluded all indirect taxes. The payment for A made by the producers B, C, D, would be excluded from the National Income at that end. Therefore, there is no reason for duplication.

Kuznets[2] has given three criteria for identifying Governmental services to the ultimate consumers.

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1. Kuznets - "Government Product and National Income" Income and Wealth Series I, 1951, Page 182.

2. Kuznets - "Government Product and National Income", Income & Wealth Series I, page 192-200.

1. The first criterion is that there should be no price or only a token price for the final product of the Government. If there is 'quid proquo' then that Government activity should be dealt in the same way as any business enterprise.

2. The second criterion is that the Government service should be available to an individual only on his 'overt initiative', for it to be a final product. This means that some services like those of army, judiciary etc. are intermediary services. Kuznets argues that the economic activity of any country is expected to be carried on under a particular social framework. Now this social framework itself should not be a part of economic activity; even though it contributes to the welfare of the society. A particular social framework is something which is to be assumed and the economic activity should be something over and above it.

The second argument is that the Government services of internal and external peace, social regulation etc. are of the nature of costs, rather than net product. Thus if the cost of maintaining the same level of internal peace rises can we say that the net product of the economy has increased?

3. The third criterion says that the services of the Government sector to become final products, should also have an analogue in the private markets. This analogue

should be on a 'substantial scale'.

Following this, Hicks[1] changed his attitude and accepted that the Government services can be meaningfully divided into final and intermediate products.

We shall now explain* the division between the Final and the Intermediate output, as given by COFOG (Classification of the Functions of Government")[2]

COFOG has divided the Government Production into three parts -

1. General Government Services - This includes those activities, which cannot be associated with services to persons or business.

2. Community and social services - This includes the services supplied to the community and households and persons, in a direct way.

3. Economic Services - This includes the services supplied to the business, for its more efficient operation and regulation.

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1. Hicks - "The Valuation of Social Income - A Comment of Prof. Kuznets' Reflections "Economica 1948, page 164.

* This exposition is based on the article "Dividing Government Product between intermediate and Final Uses" by K. Hoiz & U.P. Reich in "Review of Income & Wealth", 1982, Vol. 23, page 325.

2. COFOG - United Nations, Department of International Economic and Social Affairs, Classification of the Functions of Government Statistical Papers Series M, No. 70 (New York, 1980).

COFOG has made use of the Input - output table in separating the final from the intermediate output. We see that the General services have an impact on many agents, and not on any one in a specific way. COFOG says that a function can be assigned either to a specific use or none at all. In the latter case, instead of spoiling the Input-output structure by distributing inputs unspecifically to all agents, it is preferable to keep a specific function undistributed. Therefore, on the basis of this principle we see that, the Economic services become intermediate goods as they are consumed by the business. The community and social services become the final goods, because the households and individuals consume them directly. There exists a theoretical debate regarding the 'general government services'. One can classify these as intermediate, because indirectly they help the production of goods and services. On the other hand, we can consider general government services as final because that is what the society has produced over and above keeping the capital intact. COFOG takes the second view into consideration, and includes the General Government Services into the final output.

Furthermore, it can be noticed that some of the Economic services are used by the public also, as final consumption. For example, Road services encourage the

expansion of business activities, but they are very much consumed by the households also. It is impossible to split-up the road services according to the share of business consumption and household consumption.

The logic behind saying that the Economic services are intermediate consumption of the business services is that it is believed that the Economic Services are paid out of Indirect Taxes; on the other hand, it is believed that the Community and Social Services are paid out of the Direct Taxes, by the Government. Indirect Taxes are supposed to fall on the business services and the Direct Taxes on the consumers.

It can be seen that the above logic does not seem to be correct. First of all, the Government does not keep the Direct and Indirect taxes in separate 'boxes'. Therefore, there is no way of finding out from where the resources have come. Secondly, it is not correct to say that the Indirect Taxes are paid by the business community. The Incidence and Impact of Indirect Taxes can be different and it is quite likely that ultimately it is the consumer who is paying the Indirect Tax.

In view of this, our earlier argument of calling Economic services as Intermediate consumption and community and social services as Final consumption, crumbles.

2.8.2 Measurement of the Net Output of Government Services in the Indian Economy

The Government Services, can be divided into three

parts (1) Public Administration, (2) Defence, (3) Other Services.

(1) Public Administration and Defence covers services rendered by the administrative department of the General Government i.e. Central, State Governments, Union Teritories, Municipal Corporations, district and local bodies etc. These services relate to the organs of State, collection of taxes, administrative services, defence services, social security, relief on natural calamities, activities of Issue Department of RBI etc. Other services of the Government consists of Education, Research, Medical Services, sanitary services.

(2) For Public Administration and Defence, the Value Added consists of compensation of employees (wages, salaries and pension payments). These expenditures are obtained by analysing the budget documents of the Central, State Government and Union Teritories. In case of local bodies, the data are not available. In such cases, the estimates are prepared by utilising the information on grants to various local bodies under different account heads available in the State budget.

(3) As for other services, we have already studied the Medical and Education services.

Sanitary Services -

Estimates for Sanitary services are prepared separately for Urban and rural areas. The information is collected from municipalities for the number of workers

engaged in sanitary services and their wages and salaries. Since the dataare not available from all the municipalities, it is necessary to use these results jointly with the census data on population by towns to prepare the estimates for the urban area. The same methodology is used for the rural areas.

Research and Scientific Services -

In this subsector, the Value Added is equivalent to the wages and salaries of the employed personnel.

2.9 Conclusion

In the above discussion, the difficulties of defining the end product and hence the output and also of net output have been discussed in detail. While service sector, in view of its intangibility poses innumerable problems in defining the endproduct, one may define the output as the sum of the value of inputs plus the value of factor services, as in the case with commodity sectors. Even this broad definition needs change as far as trading sector is concerned as inputs in this case would include all goods sold.

From the latest Input-output Table available for the Indian economy, for the year 1973-74, output has been calculated for the different subsectors of the Service Sector (Appendix I) and is presented in Appendix II of this Chapter. Column 8 gives the ratio of Material Inputs to the Total output. It can be observed that the 'Railways',

'Other Transport Services', 'Hotels and Restaurants', 'Education and Research' and 'Medical and Health' services have a high material input ratio. For the remaining sectors very little of material inputs is used.

For the Service sector as a whole, the ratio of Material inputs to Total output is 0.19235. (We have excluded Public Administrations and Defence from the service sector as they have no material inputs). If we exclude the above mentioned five sectors, then the ratio falls down to 0.032097, which is certainly very low.

With this as a background, we move on to analyse the quantitative dimensions of the Service sector in the Indian Economy.

Appendix I

In our study the Service sector consists of

(i) Trade and Commerce which includes
   (a) Trade, Hotels and Restaurants
   (b) Banking and Insurance
   (c) Real Estate, ownership of dwellings and business services.

(ii) Transport, Storage, Communications

(iii) Other services include
   (a) Public Administration and Defence
   (b) Other services.

The Primary Sector consists of

(i) Agriculture

(ii) Forestry and logging

(iii) Mining and quarrying.

The Secondary Sector consists of

(i) Manufacturing
   (a) Registered
   (b) Unregistered.

(ii) Construction

(iii) Electricity, Gas and Water Supply.

Appendix II

(Figures in Lakhs)

Sectors	Service sector inputs	Material inputs	Total inputs	Indirect taxes	Gross value added	Total output	Material Inputs / Total output
1. Railways	16,106	34,237	50,343	5,162	58,408	1,13,913	0.3005
2. Other Transport Services	44,954	83,924	1,28,873	33,426	1,60,502	3,22,806	0.2599
3. Storage & Warehousing	791	267	1,058	124	4,326	5,508	0.0484
4. Communications	2,350	2,405	4,755	531	31,339	36,625	0.0656
5. Trade	76,027	20,881	96,908	5,145	5,58,055	6,60,108	0.0316
6. Hotels & Restaurants	20,471	98,590	1,19,061	4,247	44,417	1,67,725	0.5878
7. Banking	12,029	3,000	15,029	689	72,783	88,501	0.0338
8. Insurance	1,655	784	2,439	188	37,655	40,282	0.0194
9. Education & Research	13,782	43,895	57,677	2,002	1,16,077	1,75,756	0.2497
10. Medical & Health	18,106	61,728	79,834	8,392	28,564	1,16,788	0.52854
11. Other services	3,829	2,673	6,504	1,343	96,088	1,03,933	0.02571
12. Public Administration & Defence	-	-	-	-	2,22,082	2,22,082	-

Source: Input-output Table, 1973-74.

CHAPTER III

ROLE OF SERVICE SECTOR IN THE INDIAN ECONOMY

3.1 It is proposed to examine the role of Service sector in the Indian Economy, in this chapter. Certain basic issues pertaining to the Service sector like, the contribution of Service sector output to the total output of the economy, the rate of growth of Service sector output in comparison with the rates of growth of other sectors, employment in Service sector, the capital structure and productivity etc. would be examined.

3.1.1. It is sometimes argued (Colin Clark, Kuznets) that in the early stages of economic development, the service sector grows more rapidly than commodity production, to meet the accelerated demand for infrastructural facilities. We examine this proposition with respect to India by using the data of Net Domestic Product over the period 1950-51 to 1980-81.

Table 1.1: Distribution of Net Domestic Product* (in crores) (at 1970-71 prices)

Year	Total	Commodity producing (1) sectors	Service Sector(2)	2 as % of 1
1950-51	16798	12007	4791	39.9%
1960-61	24360	16825	7535	44.7%
1970-71	34519	22244	12275	55.1%
1980-81	47193	27995	19198	68.8%

* Source: "National Accounts Information System" by Roy Choudhury and M. Mukherjee, 1984, page 153
Commodity producing sector includes Primary and Secondary sectors, excluding Construction activity which is included in the Service sector.

It can be observed that the Net Product of Services which was around 39.9% of the commodity production, in 1950-51, increased to 68.8% in 1980-81. Looking at the figures in the last column, it is seen that the contribution of Service sector has not only increased, but increased at an increasing rate, over the period.

The absolute figures show that the Net Product of the Service sector increased four times, while the commodity product only doubled, over the period. Therefore, the Service sector is becoming increasingly important in the economy.

3.1.2 This essentially raises questions regarding the contribution of the Government in this change of scene. As is widely known, the Government has actively participated in the economic growth of this country under its Five-Year Plans. Therefore, we look into the organizational pattern of the Service sector.

The Service sector is often divided into the organized and the unorganized sectors*. Organized sector can be further divided into the Public and Private. All the unorganized sector is under Private ownership.

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* While in the case of manufacturing the factory sector is treated as organized, in the case of services, the definition of organized sector is not clearly spelt out. We infer from DGET and NSS reports that the establishments having 10 or more workers comprise of the organized sector.

Table 1.2: Distribution of NDP between organized and unorganized sectors (at current prices, percent)*

Year	Service sector: Organized Public	Organized Private	Total	Unorganized	Total
1960-61	30.3	10.8	41.1	58.9	100
1970-71	36.3	8.0	44.3	55.7	100
1979-80	37.6	7.4	45.0	55.0	100

* Source: "National Accounts Information System", Mukherjee, Roychoudhury, 1984, pg. 155.

It can be easily seen that the contribution of public sector in the NDP has increased substantially. But it is important to remember that the growth in Public sector is not always because of the establishment of new enterprises but also due to nationalization of services like Banking, Transport.

Secondly, it is observed that the unorganized sector contributes more than half of the Product of the Service sector. Though the unorganized sector is less important in the Service sector, than in the Primary sector, it's importance is much more in the Service sector than in the Secondary sector. It is noticed that, over the years the contribution of unorganized sector has diminished only slightly. Predominance of the unorganized sector is, therefore, an important feature of the Service

sector.

3.1.3 As mentioned earlier, with economic development, there is an accelerated demand for the infrastructural facilities. For India, we have the Growth rates for the G.D.P. (at constant prices), in Public Sector infrastructure for the period 1961 to 1980 (K. Krishnamurty).* It has been found that for the period 1961 to 1970, the growth rate for Public Sector infrastructure was 6.2%, for 1971-80 it was 6% and for the entire period 1961-1980, it was 5.4%. The growth rates have been very high, as expected. In fact, these growth rates are much higher than the growth rates attained by other sectors, as will be seen later.

Therefore, the economic development seems to have manifested itself in higher demand for infrastructural facilities in India.

3.2 With this as background, we look into the output of Service sector, with reference to other sectors. We are interested in seeing, how the output of the Service sector has behaved in the last thirty years of economic growth.

3.2.1 In the first instance, we study the Net Domestic Product at factor cost, at current prices, for the year 1950-51 to 1980-81. The figures are presented in

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* K. Krishnamurty : "Inflation and Growth : A Model for India" in 'The Indian Economic Review' Vol. 19, Jan. June, 1984, No. 1, pg. 62. Public Sector Infrastructure includes electricity etc. transport and communications.

Appendix I (For the years 1950-51 to 1959-60, the NDP for Mining and Quarrying has been substracted from the Secondary sector and added to the Primary sector, making the data comparable).

We see that from 1950-51 to 1980-81 the Total NDP and the NDP of all the Sectors has increased in absolute terms. In 1950-51, the percentage share of Primary sector was 52%, that of the Secondary sector was 15.4% and that for the Service sector was 32.6%. We see that in 1980-81, the share of Primary sector decreased to 39.9%, the share of Service sector increased to 37.1% and the share of Secondary sector increased to 23%. It can be noticed that over this period, though there have been ups and downs for all the three sectors, there is a definite trend towards the falling share of Primary sector and the rising share of Secondary and Service sector.

The absolute figures show that the NDP at current prices for the Service sector, sharply rises to Rs. 5,239 crores in 1959-60 from Rs. 4,012 crores in 1958-59, and then there is a steep fall to Rs. 3,821 crores in 1960-61. So much of swing looks to be too large to be plausible. While large changes in Primary sector output can be attributed to the vagaries of weather, such large changes in Service sector cannot be explained. Therefore, the NDP for Service sector for the years 1959-60 and 1960-61 as given in the National Accounts Statistics are suspect and

are not in tune with the rest of the series.

We know that the estimates at current prices do not give us a correct picture. This is because they confound the changes in prices with those of changes in output. That is, a rise in the value of NDP can be due to either a rise in the production of output or due to rise in the prices or due to both. Therefore, when we are interested in finding out the increase in output, we need to use the constant Price Series.

In Appendix II, we give the NDP at factor cost, with 1970-71 as the base year. We constructed the sectoral breakdown for the period 1950-51 to 1969-70, because the same is not available in the National Accounts statistics. The Arithmetic Transformation Method was used.* For the period 1970-71 to 1980-81, the breakdown is available in the NAS.

If we look at the percentage share of each sector, then we see that the trend observed earlier, is confirmed here. The percentage share of Primary sector has been falling and that of Secondary and Service sector has been rising. With respect to Service sector, one observation needs to be made. We see that in the current prices series, the rise in the percentage share of Service sector was from 32.6 to 37.1 from 1950-51 to 1980-81. While in

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* The procedure by which it was done is explained in the Appendix II itself.

the constant price series (with 1970-71 prices), the share of service sector has increased from 24.1 to 36.4 for the same period. Therefore, in real terms, the rise in the output share of service sector has been much more than in the nominal terms.

3.2.2 (a) It has already been observed that all the sectors and the Total economy have been expanding over last thirty years in absolute terms. Now we seek to find out the rate of growth of each of the sectors and that of the entire economy.

In the first instance, we look into the growth rate* of NDP at current prices. Though the Price and Quantity changes get mixed up in the growth rates at current prices, it is not proper to neglect them, as current prices reflect the equilibrium prices at that point of time.

Table II.1: Growth Rate of NDP at Current Prices (per annum)

Period	Total NDP	Primary	Secondary	Service
1950-51 to 1960-61	4.6	3.34	5.4	4.53
1960-61 to 1970-71	10.17	10.08	10.06	10.4
1970-71 to 1980-81	11	8.2	13.14	13.39
1950-51 to 1980-81	8.7	8.27	9.07	8.8

* Growth rates have been found out by fitting a semilog regression function, and have been annually compounded.

During the period 1950-51 to 1980-81, the growth rate of the economy has been 8.7%. The rate of growth for the Service sector, for the same period, has been almost the same. The secondary sector has shown a slightly higher rate of growth at 9.07%, and the Primary sector has shown a slightly lower rate of growth.

(b) To take account of the Price changes, it is necessary to look into the growth rates of the NDP at constant prices.

Table II.2: Growth Rates of NDP (in constant prices) (1970-71, per annum)

Period	Total NDP	Primary	Secondary	Service
1950-51 to 1960-61	3.59	3.09	3.7	4.69
1960-61 to 1970-71	3.18	1.77	4.9	4.5
1970-71 to 1980-81	3.51	1.82	4.45	5.23
1950-51 to 1980-81	3.43	2.21	4.55	4.85

It can be observed that the rate of growth of the Total N.D.P. has been around 3 to 3.5 per annum. The service sector has had a very high rate of growth. For the overall period 1950-51 to 1980-81, it enjoyed a growth rate of 4.85, which is more than that of the Secondary sector.

We can compare these growth rates with those of M. Mukherjee and Roychoudhuri* given below.

Table II.3: Growth rates for NDP in Constant Prices (1970-71, per annum)

Period	Total NDP	Primary	Secondary	Service
1951-61	3.83	3.07	5.51	4.6
1961-71	3.63	2.57	5.12	5.14
1971-81	3.28	1.86	4.02	5.12
1951-81	3.58	2.53	4.68	4.84

These growth rates do not completely tally with our growth rates. While in the decade of fifties our estimate of growth rate for Secondary sector is 3.7, Mukherjee and Choudhuri's estimate is 5.51. In sixties, our estimate of Primary sector's growth rate 1.77 as against 2.57 of Mukherjee and Choudhuri. For the other two sectors also the growth rates of Mukherjee et.al. are higher compared to our estimates. For the decade of seventies overall growth rate in our calculations turns out to be 3.51 compared to 3.28 by Mukherjee et.al. These are significant differences.

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* National Accounts Information system", 1984, page 150.

K. Krishnamurty* has estimated the growth rates for the decades of sixties and seventies in G.D.P. His estimates are given below.

Table II.4: Growth rates for GDP (in constant prices) (1970-71, per annum)

	1961-70	1971-80	1961-80
G.D.P.	3.2	3.6	3.5
G.D.P. in Agriculture	1.3	1.8	2.2
G.D.P. in Industry	4.9	5.0	4.4
G.D.P. in Public sector infrastructure	6.2	6.0	5.4
G.D.P. in Tertiary	5.0	4.8	4.6

Though these estimates cannot be strictly compared with our estimates as K. Krishnamurty has used G.D.P. figures while our estimates are in NDP and also because of slight differences in the period. However these differences are unlikely to affect the trends of decadal growth rates. We present below some of the growth rates where there are major differences amongst different estimates.

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* K. Krishnamurty: "Inflation and Growth: A model for India", in 'The Indian Economic Review', Vol. 19, Jan-June, 1984, No. 1, page 62. Agriculture includes agriculture and allied activities. Industries include Mining and Manufacturing. Public Sector Infrastructure includes electricity etc, transport and communication. Tertiary includes the rest of the economy.

	Growth rates (p.a.)		
Period & Sector	Ours	Mukherjee et.al	K.Krishnamurty
Fifties -			
Secondary	3.7	5.51	N.A.
Sixties -			
Overall	3.18	3.63	3.2
Primary	1.77	2.57	1.3
Service	4.5	5.14	5 to 6
Seventies -			
Overall	3.51	3.28	3.6
[illegible]	[illegible]	[illegible]	[illegible]
Secondary	4.45	4.02	5.0

It can be seen from the above table that our estimates while significantly different from that of Mukherjee et.al, are nearer to that of K. Krishnamurty's. As already mentioned, some adjustments need to be done for the figures from NAS, to arrive at a constant Price series, sectorwise. The above differences in estimates could be due to differences in the method of adjustments.

Obtaining growth rates in constant Prices naturally depends on the base year in which constant prices are worked out. They could be neutral to the base year only if the relative prices remain the same throughout the period which is hardly ever true. V.K.R.V. Rao* has worked

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* "National Income of India: 1950-1980", 1983, pg.32.

out the growth rates with 1960-61 prices.

Here too, it can be observed that the Service sector has enjoyed a very high rate of growth.

Table II.5: Growth rates for NDP in constant Prices (1960-61 prices, per annum)

Period	Total N.D.P.	Primary	Secondary	Service
1950-51 to 1960-61	3.77	2.66	5.81	4.63
1960-61 to 1970-71	3.39	1.78	4.94	4.76
1970-71 to 1980-81	3.71	1.69	4.84	5.27
1950-51 to 1979-80	3.63	2.09	5.19	4.95

One very important similarity which exists in all the estimates mentioned above is that in the decade 1970-71 to 1980-81, the Growth rate of the Service sector has been substantially higher than that of the Secondary sector. This could be a trend which would lead to a higher rate of growth for service sector in the eighties also.

(c) Another way of looking at the same problem would be to measure the contribution of each of the sectors in the overall growth of the economy.

We have estimated the composition of the overall growth for the Indian economy, method being given in Appendix III.

Table II.6: Composition of overall growth (1970-71 prices in %)

Period	Primary	Secondary	Service	Total
1951-1961	51.3	16.6	32.1	100
1961-1971	33.9	27.1	39.0	100
1971-1981	22.3	24.9	52.8	100
1951-1981	33.3	23.6	43.1	100

During the period 1951-1981, the Primary Sector accounted for 33.3% of the entire growth rate and the Service sector accounted for 43.1%, while the Secondary sector accounted for 23.6%.

Over the thirty year period, it can be noticed that the contribution of the Primary sector has fallen severely and that of the Service sector has increased enormously. The Secondary sector showed an increase in the sixties and fell down in the seventies.

Mukherjee and Roy Choudhury* also give the composition of overall growth, given in Table II.7.

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* "National Accounts information system", 1984, page 151.

Table II.7: Composition of overall growth (1970-71 Prices in %)

Period	Primary	Secondary	Service	Total
1951-61	49.34	21	29.66	100
1961-71	40.06	24.03	35.91	100
1971-81	27.9	24.2	47.9	100
1951-81	45.1	19.3	35.6	100

It can be seen that though there are discrepancies in our estimates and these estimates, both of these point out the increasing share of Service sector in the overall composition of growth from the decades of fifties to seventies. Our estimates of the contribution of Service sector in the overall composition of growth are higher than those of Mukherjee et.al.

Therefore, we can conclude that there is a trend towards a high rate of growth of the Service sector, which became higher than the Secondary sector in the seventies. This has also manifested itself in the composition of the overall growth, where Service sector takes a lion's share.

In some way, it is a matter of concern because the contribution of the commodity producing sector (i.e. the Primary and Secondary) has been declining over the period. With high level of poverty, as in India, whether this represents real growth is debatable. Of course, the growth

of infrastructural facilities is a prerequisite for development as already mentioned. But the rest of the Service sector (i.e. exclusive of infrastructural facilities) also has grown at a very high rate, as is evident from K. Krishnamurty's estimates. This is a cause of concern in a subsistence economy like India.

Moreover, as will be observed in the next section, there has not been much change in the pattern of employment between the sectors. Therefore, though the Service sector has grown at a very high rate, it has continued to employ the same percentage of the working population. Therefore, increase in output of Service sector has not resulted out of the shift in population towards it.

3.3 Employment and Labour Productivity in the Service Sector

It is generally believed that the Service sector is a Labour-intensive sector and that the Labour Productivity is quite low in it. Victor Fuchs (8) has shown that the real output per man grew at 0.7% p.a. for the Service Sector, while for the goods sector the rate of growth was 2.4% p.a., for the period 1929 to 1961, for the U.S. Economy. ("Productivity Trends in the Goods and Service sectors, 1929-61").

Similarly Victor Fuchs (9) has also shown that the employment in service industries rose from 40% to 55% while the output remained at 48%, in constant dollars, for the U.S. Economy, from 1929 to 1965 ("Service Economy").

We shall examine these propositions with respect to India.

3.3.1 Table III.1(a) gives the overall employment figures in the Indian Economy.

Table III.1(a)*: Employment of Labour (in lakhs)

Sector	1950-51	1960-61	1970-71	1980-81 (Estimated)
1. Agriculture	1029	1183	1289	1507
2. Forestry & logging	2.52	2.68	3.61	4.53
3. Fisheries	4.21	5.44	5.86	7.10
4. Mining & Quarrying	7.80	8.48	9.23	9.48
5. Registered Manufacturing	29.69	36.67	50.45	66.97
6. Unregistered Manufacturing	115.5	121.1	118.6	207.3
7. Electricity, Gas & Water supply	1.36	2.03	5.14	6.93
8. Construction	15.65	18.01	32.47	40.80
9. Railways	8.99	9.79	11.67	15.72
10. Non-Railway Transport & Storage	14.11	16.7	27.7	36.3
11. Road transport	8.93	14.23	17.31	31.33
12. Air transport	0.13	0.19	0.28	0.57
13. Communications	1.95	2.73	4.56	4.74
14. Trade Hotels and Restaurants	72.80	77.50	90.28	158.2

* Source: Brahmananda: "Productivity in the Indian Economy" Rising Inputs for Falling outputs", 1982.

Table III.1(a) - Continued

Sector	1950-51	1960-61	1970-71	1980-81 (Estimated)
15. Banking & Insurance	1.47	2.57	5.61	8.87
16. Real Estate, ownership of dwellings & business services	0.60	1.38	3.07	4.50
17. Public administration and Defence	32.6	33.7	48.7	62.8
18. Other services	123.0	128.0	103.0	125.0
Total	1470.31	1664.16	1826.54	2298.14

The estimated figures for 1980-81 seem to be too high in certain cases like Unregistered Manufacturing, Road transport etc.

To understand the importance of each in percentage terms, we have Table III.1(b).

Table III.1(b): Employment of Labour (in lakhs)

Sector	1950-51	1960-61	1970-71	1980-81 (Estimated)
Primary sector (1+2+3+4)	1043.53 (70.97)	1199.61 (72.08)	1307.7 (71.59)	1528.11 (66.5)
Secondary sector (5+6+7+8)	162.2 (11.03)	177.81 (10.68)	206.66 (11.31)	322 (14.01)
Service sector (9 to 16)	264.58 (18)	286.74 (17.24)	312.18 (17.1)	448.032 (19.49)
Total	1470.31 (100)	1664.16 (100)	1826.54 (100)	2298.142 (100)

It is known that the employment figures, as they are available from the Indian Census are not comparable. There has been a change in the definition of the 'worker'. But this change in the definition did not much affect the figures for male workers. Therefore V.K.R.V. Rao* has made use of the Distribution of Sectoral Male workers. In Table III.1(c) it can be observed that the employment between the sectors has not changed significantly over the period and that the service sector has continued to employ around 18% of the Male workers. It can also be observed that this result is more or less in tune with the result which we obtain from the Table III.1(b). In Table III.1(b) it can be observed that the Service sector has continued to employ around 18% of the 'working' population. We realize,

Table III.1(c): Percentage Distribution of Sectoral Male Workers

Sector	1951	1961	1971
Primary	69.1	68.0	70.4
Secondary	12.6	12.7	11.2
Tertiary	18.3	19.3	18.3
Total	100.0	100.0	100.0

* V.K.R.V. Rao : India's National Income : 1950-1980, pg. 36.

on the other hand, that the share of Service sector in the NDP has risen (see Appendix I and II). This inevitably brings us to the question of Labour Productivity.

3.3.2 Labour Productivity

"Productivity refers to a comparison between the quantity of goods or services produced and the quantity of resources employed, in turning out these goods and services" (Fabricant).

Therefore, Labour Productivity can be defined as the output of a sector divided by the employment in that sector.

Labour Productivity for the entire economy and for the sectors will be found out now.

The first step is to find the NDP at constant prices for different sectors and for the total economy. This we have already calculated and presented in Appendix II. These figures are to be divided by employment figures given in Table III.1(b). The Labour Productivity figures so attained are presented in Table III.2.

Table III.2: Labour Productivity (in 1970-71 Prices)

N.D.P.	1950-51	1960-61	1970-71	1980-81
Primary sector	957.93	1156.55	1323.46	1319.54
Secondary sector	1707.76	2264.9	3286.54	3107.45
Service sector	1524.38	2252.87	3339.31	3847.09
Total Economy	1142.48	1463.85	1889.89	2062.79

Foot Note: NDP is given in crores and employment in lakhs. Both of them are converted into millions.

In absolute terms, the Service sector enjoyed a higher Labour Productivity than the Secondary sector, for the years 1970-71 and 1980-81. The Labour Productivity in Primary Sector has always been the lowest.

The rate of growth of Labour Productivity is given in Table III.3.

Table III.3: Rate of Growth of Labour Productivity (% per annum)

	1950-51 to 1960-61	1960-61 to 1970-71	1970-71 to 1980-81
Primary sector	1.9	1.35	- 0.1
Secondary sector	2.8	3.7	- 0.6
Service sector	3.98	4	1.4
Total Economy	2.5	2.5	0.87

The Service sector has had a higher rate of growth of Labour Productivity than other sectors, in each of the periods. It can be further noticed that the rate of growth of the Labour Productivity for all the sectors has fallen in seventies as compared to sixties; and that the fall has been much more in Secondary sector than in the Service sector. The reason for this sort of result can be that the method of measurement of Service sector is such that in constant prices there is an upward bias in the estimation of Value Added. While for the Primary and Secondary sectors the output being tangible, the Value

Table III.5: Net Domestic Product (in Rs. Millions, at 1970-71 prices)

Sectors	1960-61	1970-71	1980-81
1. Trade & Commerce	31196	55630	101407
2. Transport, storage & Communications	9688	15740	23448
3. Other services	23706	32850	48290
4. Service sector	64590	104220	173145

For 1960-61 Service sector figures, we have applied the deflators to get the estimates for the subsectors. The rest of the figures are available from the N.A.S.

On the basis of Table III.4 and III.5 Labour productivity can be found out.

Table III.6: Labour Productivity (1970-71 prices)

Sectors	1960-61	1970-71	1980-81
1. Trade & commerce	3832.4	5624.8	5912.9
2. Transport, storage & communications	2227.1	2559.3	2646.3
3. Other services	1466.04	2165.4	2571.3
4. Service sector	2253.6	3339.3	3864.8

The Labour Productivity has been rising for the Service Sector as a whole and for each of the subsectors. In absolute terms, the highest place has always gone to

the subsector, 'Trade and Commerce'.

The next step is to look into the rate of growth of Labour Productivity.

Table III.7: Rate of Growth of Labour Productivity (per annum %)

Sectors	1960-61 to 1970-71	1970-71 to 1980-81
1. Trade & Commerce	3.91	0.5
2. Transport, storage & communications	1.4	0.33
3. Other services	3.97	1.7
4. Service sector	4	1.4

The Service sector had a rate of growth of around 4% in the sixties and in the seventies the rate of growth of Labour Productivity fell down to 1.4%. In all the subsectors, there has been a fall in the rate of growth of Labour Productivity.

Therefore, it can be concluded that the employment pattern has remained more or less the same for over last thirty years, which is a cause for concern. It is generally believed that with the economic development of a country, there is a shift in the working population from Primary sector to Secondary sector and then to the Service sector. It has apparently not happened in India.

Moreover, the rate of growth of labour productivity

has fallen drastically in the seventies as compared to sixties. The fall has been much more prominent in the commodity producing sector than in the service sector.

3.4 Rural-Urban Labour Productivity for Service Sector

It is well known that in India, 70% of the population lives in the rural areas. Therefore, it is interesting to find out, as to how much of the Service sector income arises in Rural areas and how much in the Urban areas.

3.4.1 Table IV.1 gives the Rural-Urban income distribution of Service sector. As the figures for 1980-81 are still not available the comparison is linked to the decade of sixties.

Table IV.1: Rural-Urban Income distribution of the Service Sector (in 1970-71 prices, in millions)

Year	Service sector	Rural sector	Urban sector	Rural sector in % terms	Urban sector in % terms
1960-61	64590	22735	41855	35.2%	64.8%
1970-71	104220	29911	74309	28.77%	71.23%

Source: Monthly Statistical Abstract - July, 1981.

The urban sector contributes about two times the contribution of rural sector in the Service incomes. Further the share of Rural sector in NDP, has fallen from 35.2% to 28.77% in the 10 year period as far as the Service sector is concerned.

3.4.2 Table IV.2 gives the employment in Service sector.

Table IV.2: Employment in Service Sector (in millions)

Year	Rural	Urban
1961	15.69	14.5
1971	12.6	17.6

*Source: Monthly Statistical Abstract - July, 1981.

It can be noticed that the employment in Service sector in Urban areas has increased by 3.1 millions; while surprisingly in the rural areas it has decreased in absolute numbers by 3.09 millions.

3.4.3 Using the earlier definition of Labour Productivity, Rural and Urban Productivities have been found out.

Table IV.3: Rural Urban Labour Productivity and their Rates of Growth.

	Labour Productivity		Rate of growth (p.a.)	
	Rural	Urban	Rural	Urban
1961	1449	2886.5	5.06	3.87
1971	2373.8	4222.1		

The Labour Productivity in Urban areas is much higher (nearly twice) than in Rural areas. Surprisingly, the rate of growth of Labour Productivity is higher in Rural areas (5.06%) than in Urban areas (3.87%).

But Labour is not the only factor of production, rather it is used with others like the capital. Therefore, in the next section, the Capital Productivity in the service sector will be looked into.

3.5 Capital structure of the Service Economy

In this section, an examination of the capital structure of the service sector will be made. The first step would be to find out, as to how much of the Total Capital is employed in the Service economy. The estimation of Capital stock is quite complex and is beset with many difficulties. Fortunately, a study by Uma Datta Roy Choudhury provides estimates of Reproducible Tangible Wealth (RTW), in various sectors of the Indian economy. The RTW is defined as "RTW comprises all such assets which have been produced or can be produced within the economic system, such as buildings, other construction works, improvements of land and irrigation projects, livestock, plant and machinery, transport and other equipment and inventories of raw materials, finished and semifinished goods."

3.5.1 It can be observed that the percentage share of Service sector, in the RTW, has been steadily rising from 25.8% in 1950 to 36.7% in 1971. On the other hand, the share of the Primary sector has fallen by almost 9 per cent point for the same period. The estimates of RTW in

Table V.1*: Reproducible Tangible Wealth - % distribution (at current prices, in Rs. crores)

Sectors	1950	1961	1971
1. Primary	28.4	21.9	19.4
2. Secondary	13.1	20.1	19.3
3. House Property	32.7	27.8	24.6
4. Service sector	25.8	30.2	36.7
(a) Railways	8.4	9.2	7.9
(b) Transport by other means	4.2	5.1	4.7
(c) Communications	0.5	0.7	0.9
(d) Trade, Hotels & Restaurants	9.0	5.5	4.1
(e) Banking & Insurance	0.4	0.5	0.8
(f) Public Administration	3.3	7.6	9.3
(g) Other services	Not available	1.6	5.0

* Source: Uma Datta Roy Choudhuri - "Industrial Breakdown of Capital stock", Journal of Income & Wealth, Vol. I, 1976-77, pg. 144.

absolute terms, for the service sector are given below.

3.5.2

Table V.2*: RTW, as on March (in current prices, in Rs. crores)

	1950-51	1961-62	1971-72	Rates of growth (p.a.) 1950-51 to 1961-62	Rates of growth (p.a.) 1961-62 to 1971-72
1. Service sector	4866	16828	33488	11.9	7.1
a) Railways	1574	3290	8092	6.9	9.4
b) Transport by other means	799	1835	4862	7.8	10.2
c) Communications	93	254	920	9.5	13.7
d) Trade, Hotels & Restaurants	1704	1962	4175	1.2	7.8
e) Banking & Insurance	68	197	820	10.1	15.3
f) Public Administration	628	8726	9475	27	0.8
g) Other services	Not available	564	5144	-	24.7

* Source: Uma Datta Roy Choudhury Ibid.

The Capital stock of the service sector has increased from Rs. 4866 crores in 1950-51 to Rs. 33,488 crores in 1971-72 (at current prices). The Capital stock has grown at a rate of 11.9% p.a. in the fifties and the rate fell down to 7.1% p.a. in the sixties. In real terms, the decline in the rate of growth would be much higher as

prices have increased faster in the sixties than in the fifties. Each of the sectors other than Public Administration; gives altogether a different picture showing higher rate of growth of Capital stock, in sixties compared to fifties.

The figures show that the capital stock in public Administration had a quantum jump of 13 times from 1950-51 to 1961-62 and showed only a marginal increase in the sixties. While building up and strengthening the combat forces of Defence, after Independence, might explain some increase, such large increase is somewhat inexplicable.

On the basis of RTW in current prices and NDP at current prices for the same years, Uma Datta Roy Choudhury has found out the Average Capital output Ratio given below.

3.5.3

Table V.3: Average Capital-Output Ratio (at current prices, as on March)

Sectors	1950-51	1961-62	1971-72
1. Agriculture	1.16	1.13	1.15
2. Manufacturing	1.54	2.99	3.81
3. Service*	1.68	4.072	2.92
a) Railways	8.33	12.19	14.15
b) Transport by other means	5.47	6.51	5.57
c) Communications	3.10	3.68	3.69
d) Trade, Hotels & Restaurant	1.36	1.42	1.11
e) Banking & Insurance	1.13	1.08	1.15
f) Public Administration	1.46	4.77	5.15
g) Other services	-	0.36	1.24

* We have calculated the Average Capital Outputs ratio -

By and large, there has been a trend towards capitalization of the economy. More particularly, the capital output ratio increased drastically for Service sector in the period 1950-51 to 1961-62 from 1.68 to 4.072 respectively. As observed earlier, part of this increase might be due to strengthening of Defence. Then for the period 1961-62 to 1971-72 it fell down by almost half. Railways and Public Administration have shown a pronounced trend towards using more capital per unit of its output. It is only with respect to Trade, Hotels and Restaurants that the Average Capital-output ratio has fallen, in the period 1961-62 to 1971-72.

3.5.4 If the relative prices of Capital goods and output vary differently, the comparison of Capital output ratios at current prices, as was done previously, would be misleading. To take account of the changes in relative prices the capital output ratios need to be examined at constant prices.

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* - for the Service Sector as a Whole, on the basis of Table V.2 and Appendix I (which gives NDP at current prices, for the three sectors).

In Table V.4*, RTW at 1970-71 prices is given.

Table V.4: RTW in crores (1970-71 prices)

	Sectors	1961	1977
1.	Trade & Commerce	6599	11904
2.	Transport, storage & communications	9259	18138
3.	Other services	7352	17298
4.	Service sector	23210	47340

NDP at 1970-71 prices is given below.

Table V.5: NDP in Crores (1970-71 prices)

	Sector	1960-61	1976-77
1.	Trade & Commerce	3119.6	7131
2.	Transport, storage & communications	968.8	2329
3.	Other services	2370.6	4271
4.	Service sector	6459	13731

* Source: P. Narain and R.P. Katyal, "Long Term Trends in Capital-output Ratios", Journal of Income & Wealth, Vol. 4, July 1980, pg. 82.

On the basis of these two tables, we can find out the capital output ratio, at constant prices.

Table V.6: Capital output Ratios (1970-71 prices)

	Sectors	1960-61	1976-77
1.	Trade & commerce	2.11	1.66
2.	Transport, storage & communications	9.55	7.78
3.	Other services	3.10	4.05
4.	Service sector	3.59	3.44

The capital-output ratio for the Service sector has fallen between the period 1960-61 to 1976-77, from 3.59 to 3.44. For the same period, the ratio rose for the sub-sector, 'Other Services', while for 'Trade and Commerce' and 'Transport, storage and communications', it fell.

3.5.5a In Appendix IV, we have given the Gross Domestic Capital Formation, for all the three sectors, at 1970-71 prices. We observe that the Service sector accounted for a very high percentage of the Gross Domestic Capital Formation, in 1950-51. It was around 45% in the fifties. But over last thirty one years, the percentage share in Gross Domestic capital formation, of the Service sector has fallen to around 35% and that of the Secondary sector has risen.

b. In Table V.6, we see the growth rates of the Gross Domestic Capital Formation, at 1970-71 prices.

Table V.6: Growth rates of GDCP (at 1970-71 prices)

Period	Primary	Secondary	Service
1950-51 to 1960-61	3.07	12.51	6.98
1960-61 to 1970-71	5.61	5.1	4.2
1970-71 to 1980-81	7.27	6.79	3
1950-51 to 1980-81	5.03	7.67	4.59

As expected, it can be observed that the Secondary sector has enjoyed the highest rate of growth, in the period 1950-51 to 1980-81. It is interesting to note that, though the rate of growth of the Secondary sector has been much higher than that of the Service sector; in absolute terms the GDCF has either been quite comparable for both the sectors or the GDCF of the Service sector has been higher than that of the Secondary sector. Only after 1978-79 has the trend been reversed.

In absolute terms the GDCF of the Primary sector falls far behind that of the other two sectors, though its overall rate of growth is higher than that of the Service sector.

Therefore, it can be concluded that the Service sector was using an amount of Capital which was many times that of the capital used in the other two sectors, way back in fifties. Over the thirty year period, its share has gone down, though it remains a capital intensive sector.

c. Connected with the concept of GDCF, is the concept of Incremental capital output ratios (ICOR). ICOR gives the ratio between change in the capital and the change in the Net output.

Table V.7*: Incremental Capital output Ratios (1970-71 prices)

Sectors	1950-60	1960-70	1970-80
1. Agriculture	1.00	2.00	5.00
2. Registered manufacturing	5.72	5.2	9.24
3. Real Estate & Housing	23.68	18.78	13.81
4. Railways	16.53	29.06	10.42
5. Road transport	3.03	2.34	1.45
6. Air Transport	11.2	7.65	6.47
7. Communications	3.85	4.78	4.31
8. Trade, Hotels & Restaurants	1.08	0.97	3.77
9. Public Administration	16.18	6.84	8.45
10. Other services	0.96	6.19	2.64

* Source: Brahmananda: "Productivity in the Indian economy - Rising inputs for falling outputs" - pg. 219, 1982.

It can be noticed that some of the sub-sectors of the Service sector, have shown very high ICOR, e.g. Railways, Air Transport and Public Administration. It can be safely said that the ICOR of the Service Sector is very high, confirming our earlier proposition of a high capital

intensity of the service sector.

As concluding remarks, it can be said that to generate one Re income, the Service sector required Rs. 1.68, Rs. 4.072 and Rs. 2.92 worth of capital, for the years 1950-51, 1961-62 and 1971-72 respectively. At 1970-71 prices, the capital requirement was Rs. 3.59 in 1960-61 and Rs. 3.44 in 1976-77.

The popular notion that the Service sector does not require much capital is not borne out by the above analysis. Even the ICOR reveals a similar tendency. We see that many of the subsectors of the Service sector have a higher ICOR than those of the Registered Manufacturing. It comes as a surprise that the public administration has had such a high ICOR of 16.18, 6.85 and 8.45 for the years 1950-60, 1960-70 and 1970-80, respectively.

Labour and capital productivities have been looked into in the last two sections. After this an attempt is made to examine as to how the Service sector is linked with the other sectors in the economy.

3.6.1 Linkages of the Service sector

In this section we examine the linkages of the Service sector with the rest of the economy. The input-output framework is the most convenient way to examine this aspect. The latest input-output table available for the Indian economy pertains to 1973-74, which was worked out by the C.S.O. The C.S.O. table has been aggregated

into Primary, Secondary and Service sectors and the abridged Table is presented below.

Table III.6: Inter Industry Transactions: 1973-74 (Figures in crores)

	Primary	Secondary	Service	Total Intermediate use	Total Final use
Primary	5885	6317	1066	13268	22521
Secondary	1729	9644	2609	13982	18631
Service	640	4125	2101	6866	15576
Total Input	8254	20086	5776	34116	
Gross Value Added	27259	10409	16054	53721	
Total Output	35764	32638	22442	90884	

It can be seen that the total gross value added for 1973-74 was Rs. 53,721 crores, out of which Service sector contributed around 30%, the Secondary sector contributed 19.3% and the Primary sector contributed 50.7%.

Further we see that out of the total output of the Service sector (i.e. Rs. 22,442 crores), around 30.5% (i.e. Rs. 15,576 crores) is used for final consumption.

From the above Table, we have a 3x3 Transactions matrix, with Primary, Secondary and Service sectors. It can be noticed from the Service sector column that the Secondary sector happens to be an important source of inputs for the service sector. Comparatively, the Service

sector's dependence on the Primary sector is quite less.

Similarly, it can be noticed that the Primary sector makes use of the Service sector output to a very small extent i.e. Rs. 640 crores. Secondary sector uses Rs. 4125 crores worth of Service sector inputs.

3.6.2 We propose to calculate the Backward Linkage and Forward Linkage for the Service sector.

Backward Linkage for the Service sector (B.L.)

Inputs of other sectors used by the Service Sector:

Rs. 1066 crores + Rs. 2609 crores = Rs. 3675 crores.

Total output of Service sector = Rs. 22442 crores.

B.L. = 0.16375.

Forward Linkage of the Service Sector (F.L.)

Output of the Service sector, used as inputs in the rest of the economy =

Rs. 640 crores + Rs. 4125 crores = Rs. 4765 crores.

Total Output of Service sector = Rs. 22442 crores.

F.L. = 0.21232.

The Backward Linkage of the Service sector shows that to generate an Income of Re. 1 in the Service sector, 16 paise worth of inputs from the Primary and Secondary sector are required. From the Forward Linkage we infer that about 21 paise worth of Service sector is used by the other sectors as it's inputs.

The above represents only the Direct Linkages. To understand the Indirect Linkages one has to consider the

elements of Leontief Inverse ($(I-A)^{-1}$). The coefficient matrix is as follows:

$$A = \begin{pmatrix} 0.16455 & 0.19354 & 0.04750 \\ 0.04834 & 0.29548 & 0.11625 \\ 0.01789 & 0.12638 & 0.09396 \end{pmatrix}$$

The $(I-A)^{-1}$ is

$$\begin{pmatrix} 1.219829 & 0.354738 & 0.109466 \\ 0.089737 & 1.478941 & 0.194461 \\ 0.036602 & 0.213296 & 1.132990 \end{pmatrix}$$

From the above matrix it can be inferred that to have 1 unit of Primary sector good available for final consumption, we need 0.036602 unit of Service sector good as input, directly and indirectly. Similarly to have 1 unit of Secondary sector good available for final consumption, 0.213296 unit of Service good is required as an input. While the direct requirements of Service sector in Primary and Secondary sectors are 0.01789 and 0.12638 respectively; the direct and indirect requirements work out to be 0.036602 and 0.213296 respectively. Clearly, the dependence of Secondary sector is greater than that of the Primary sector, on the Service sector.

To have one unit of Service sector good available for final consumption, 0.109466 is needed from the Primary sector, 0.194461 is needed from the Secondary sector and 0.132990 is needed from the Service sector itself.

It is proposed to find out the percentage share of

Direct Linkages, in the Direct and Indirect Linkages. For that we need to divide each of the element in coefficient matrix by the corresponding element in the $((I-A)^{-1})$ and multiply by 100.

$$\begin{pmatrix} 74.85 & 54.55 & 43.39 \\ 53.86 & 61.69 & 59.78 \\ 48.87 & 59.25 & 70.65 \end{pmatrix}$$

Direct Linkage component is quite high for each of the sectors, in its Total Linkage with itself (around 75% for Primary, 61% for Secondary and 70% for Service).

Direct Linkage for Service sector with the Primary sector is around 43% of the Total Linkage and the indirect linkages amount to 57%. For the Secondary sector the direct linkage is around 59% of the Total Linkage.

While the Direct and Indirect B.L. can be worked out from the Leontief Inverse, it does not become meaningful to work out the F.L. from the same, as the coefficients of a Leontief matrix are worked out by using column totals and not the row totals.

3.6.2 Now each of the subsector of the Service sector will be looked into separately. Each of the subsector should be taken as a separate entity, because their linkages with each other are also included in the BL and FL.

Table VI.1: Linkages

	1968-69		1973-74	
	B.L.	F.L.	B.L.	F.L.
1. Railways	0.354	0.418	0.441	0.524
2. Other transport services	0.396	0.337	0.399	0.407
3. Storage and warehousing	0.240	0.972	0.192	0.996
4. Communications	0.152	0.421	0.129	0.314
5. Trade	0.1902	0.494	0.146	0.512
6. Hotels & Restaurants	0.5106	0.027	0.706	0.024
7. Banking	0.2006	0.523	0.169	0.739
8. Insurance	0.0734	0.097	0.060	0.346
9. Other services	0.1107	0.523	0.0625	0.536

These linkages have been found out on the basis of the input-output Tables for 1968-69 and 1973-74.

It can be observed from the table that the subsector 'Hotels and Restaurants' have had the highest B.L. in both the period. Similarly, 'Railways' and 'Other Transport' services show a very strong B.L., while 'Insurance' shows very small B.L.

On the other hand, as far as F.L. is concerned, it can be seen that 'Storage and Warehousing' have a very, very high F.L., which is around 0.9, in both the periods. Then we observe that the F.L. effect of 'Insurance'

increased tremendously between the period i.e. from 0.097 to 0.346.

During the period 1968-69 to 1973-74 the Forward Linkages of most of the Service sectors have shown an increase indicating thereby that the other sectors of the economy have increased the use of Service sector inputs. The Backward Linkages have shown a decrease except in case of Transport and Hotel Sectors. A decline in the Backward Linkage shows that the input usage for the same level of output has declined which points out towards increasing efficiency.

3.7 Public Services in the Indian Economy

In the above section we have examined how the Service sector is linked with the other sectors in Production activity. Service sector is largely consumed by the Final Demand sector of the economy consisting mainly of the Households.

We examine below how the pattern of Consumption of services in the Household sector has changed over the period. The discussion is confined largely to Public sector services as the data on Consumption of Private sector services is not available in the required frame.

Public services refer to the various administrative and other public agencies, which are not engaged in the commodity production. Public services have varied components like defence, collection of revenue, health

services, educational services etc. Clearly, all these have differential impact on the level of welfare of the society. Using this as a criterion we can divide the public services into three components. They are

(a) Direct Benefit services -

These benefit the community directly like health, education etc.

(b) Indirect Benefit services -

These help the community indirectly through increased production of goods and services and these benefits are in disguised form e.g. defence, general administration etc.

(c) Input-like services -

These are produced and consumed by the Government e.g. tax collection activity, training facilities for the Government employees etc.

It can be seen that only Direct Benefit services are likely to have a counterpart in the Private economic activity.

3.7.1a In Table VII.1 Total consumption of the population consists of Private Final consumption expenditure and Direct Public services. Direct Private services are a component of the Private Final consumption expenditure.

Public services have three components - Direct, Indirect and Input-like services. It can be observed that the share of Direct Public Services has risen slightly from 25.8% in 1950-51 to 28.3% in 1980-81. Direct Public

Services have a redistributive effect on the level of Income. Hence, from welfare point of view it is better if the share of Direct Public Services rises. The share of Indirect Public services has remained almost the same, while that of input-like services has fallen.

b. The percentage share of Direct Public services to Total consumption has risen from 2.5% in 1960-61 to 3.9% in 1980-81, which would have a positive effect on the welfare conditions.

3.7.2 The next step is to look into the Public services in detail. For input-like services, only tax collecting activity is counted. Therefore, we restrict our study to Director and Indirect Public services.

a) In Table VII.2, Expenditure on Direct Benefit services is given. The bracketed figures give the percentage share. It can be seen that the most important direct benefit is Education, which accounts for around 54% of the total expenditure. The second place goes to Health, which is around 22%. By and large, it can be said that the composition of the Director Benefit services has not changed much over the thirty year period.

In Table VII.3, we have found out the percentage share of each of the subsectors of Director Public Benefit with respect to the Total consumption of the population, for the given years. Since the figures for 1950-51 for Total consumption are not available, we cannot do the same

Table VII.1:

(in Rs. crores at current prices)

Year	Total consumption of the population	Direct private Benefits	Public services			Total of Public services	% share of Direct Public services to total consumption	% share of Direct private benefit to total consumption
			Direct	Indirect	Input-like			
1950-51	Not available	Not available	144 (25.8)	382 (68.3)	33 (5.9)	559 (100)	-	-
1960-61	12275	564 (664)	307 (28.3)	706 (65)	73 (6.7)	1086 (100)	2.5%	4.5%
1970-71	30838	1710 (1883)	1000 (26.3)	2617 (68.8)	184 (4.9)	3801 (100)	3.2%	5.5%
1980-81	93357	4888 (5243)	3684 (28.3)	8841 (67.8)	504 (3.9)	13029 (100)	3.9%	5.2%

Footnote: 1. Miscellaneous services have not been included in Private Direct Benefit services because of their non-availability.

2. The bracketed figures in Private Direct Benefits are inclusive of domestic services, which are not included in the non-bracketed figures, to make the data comparable with Direct Public services.

for 1950-51.

Table VII.2: Expenditure of Direct Public Benefits (at current prices) in crores.

Subsectors	1950-51	1960-61	1970-71	1980-81
Education	80 (55.5)	171 (55.7)	569 (56.9)	1979 (53.5)
Health	33 (22.9)	70 (22.8)	212 (21.2)	861 (23.3)
Social security & Welfare activities	13 (9)	27 (8.7)	88 (8.8)	299 (8.1)
Housing & other community amenities	9 (6.2)	20 (6.5)	67 (6.7)	326 (8.8)
Cultural, recreational & religious services	6 (4.1)	12 (3.9)	41 (4.1)	130 (3.5)
Relief on calamities	3 (2)	7 (2.2)	23 (2.3)	94 (2.5)
Total	144 (100)	307 (100)	1000 (100)	3684 (100)

Table VII.3: Share of Direct Public Benefits in Total consumption of the Population (in percentage terms)

Subsectors	1960-61	1970-71	1980-81
Education	1.3	1.84	2.11
Health	0.57	0.68	0.922
Social security & welfare activities	0.21	0.28	0.32
Housing and other community amenities	0.16	0.21	0.34
Cultural, recreational and religious services	0.09	0.13	0.13
Relief on calamities	0.057	0.074	0.1
Total	2.5	3.24	3.9

The share of Total Direct Public Benefits has increased from 2.5% in 1960-61 to 3.9% in 1980-81. The Shares of Education and of Health have shown an increase of 60% in the period 1960-61 to 1980-81. The share of Housing etc. has more than doubled in the Total. Relief on calamities showed an increase from 0.05% in 1960-61 to 0.1% in 1980-81.

b. Table VII.4 shows the expenditure on Indirect benefit services.

Table VII.4: Expenditure on Indirect Benefit Services (at current prices, in crores)

Subsectors	1950-51	1960-61	1970-71	1980-81
Defence	188 (49.2)	297 (42.1)	1231 (47)	4015 (45.4)
General Public services	124 (32.5)	263 (37.2)	903 (34.5)	2966 (33.6)
Economic services	70 (18.3)	146 (20.7)	483 (18.5)	1860 (21)
Total	382 (100)	706 (100)	2617 (100)	8841 (100)

In absolute terms, the expenditure on indirect services has always been much higher than that on the Direct services. Defence occupies a very important position in the expenditure on indirect Benefits services. It's share has remained around 45% for the entire period. As in the earlier Table, the composition of the Indirect Benefits

has not changed much over the last thirty years.

For this exposition we have relied on

1. "Public Services in National Consumption : Concepts, Evaluation and Measurement" - seminar report, in the Journal of Income and Wealth, Vol. 6, No. 1, Jan. 1982.
2. "Public Services in National consumption", by Jagdish Kumar and H.R. Bhatnagar in the Journal of Income and Wealth, Vol. 6, No. 1, Jan. 1982.

CONCLUSION

In this chapter we have examined the role of the Service Sector in the Indian economy during the last thirty years. The important conclusions which follow are given below.

The first one relates to the changing composition of the NDP over the period. The percentage share of the Service Sector in NDP has risen in both the current and constant prices. In 1950-51, the percentage share of the Service Sector was 32.6 and in 1980-81 it was 37.1, at current prices. On the other hand, at constant prices, the share of Service Sector has increased from 24.1 in 1950-51 to 36.4 in 1980-81. Therefore, the rise has been much more pronounced in the constant prices, implying that the output of the Service Sector has increased more in real terms than in the nominal terms.

It follows from this that the Service Sector has enjoyed a very high rate of growth over the period. We have estimated the rate of growth for each of the sectors, for the given period. There are differences between our estimates of the growth rates and those given by M. Mukherjee and Roy Choudhuri. The discrepancies could have arisen due to the differences in the methods of adjustments which have to be made to arrive at constant price series.

Our estimates of the growth rates are nearer to those given by K. Krishnamurty. From K. Krishnamurty's study, we can infer that there has been a sizeable growth of the infrastructural facilities. For the period 1961 to 1980, the Public Sector infrastructure enjoyed the highest rate of growth at 5.4%.

The next important conclusion which can be drawn is regarding the capital-output ratio. We have observed that in 1950-51 and 1961-62, the Average Capital-output ratio at current prices, for the Service Sector was higher than that of Manufacturing. The most disturbing trend is that of the 'Public Administration'. This subsector has had a high capital-output ratio of 4.77 in 1961-62 and 5.15 in 1971-72. For both the years it is much higher than that of the Manufacturing. We have also estimated the Capital-output ratio at constant prices (1970-71). Here too, it has been observed that the ratio for 'other services' (which is inclusive of Public Administration here) is very high at 3.10 in 1960-61 and 4.05 in 1976-77. While a high Capital-output ratio for Transport services is expected, the same for 'Other Services' comes as a surprise.

Victor Fuchs' hypothesis of a low Labour Productivity in Service Sector and high Labour Productivity in goods sector is not borne out by our study. We have observed that in each of the decadal period under study, the Service sector has had a much higher rate of growth of Labour

Productivity, than other sectors.

We have also observed that the Labour Productivity in Urban areas has been much higher than in Rural areas, though the rate of growth of Labour Productivity in Rural areas has been much higher. While the employment in Rural areas in Service sector has fallen, it has risen in the Urban areas.

On the other hand, though there is no adequate data regarding the employment of labour, there is some evidence that the percentage employment in the Service sector has not changed much. Shifts in the share of income in favour of Service sector without corresponding shifts of labour force is a disturbing aspect.

A study of the Linkages of the Service sector, shows that the Forward Linkages of the subsectors have risen in the period 1968-69 to 1973-74, reflecting a increased dependence of other sectors on Service sectors. On the other hand, there has been a fall in the Backward Linkages of most of the Service sector subsectors, indicating improvement in efficiency.

We have also noticed that the percentage share of Direct Public Services to Total Consumption has been rising, but in view of the object poverty in India, it needs to be stressed that it should increase even more.

Appendix I

Net Domestic Product At Factor Cost - Current Prices (in crores)

					Percentage distribution		
Year 1	Total 2	Primary 3	Secondary 4	Service 5	Primary 6	Secondary 7	Service 8
1950-51	8853	4603	1363	2887	52	15.4	32.6
1951-52	9176	4707	1468	3001	51.3	16	32.7
1952-53	8945	4463	1466	3016	49.9	16.4	33.7
1953-54	9601	4963	1526	3112	51.7	15.9	32.4
1954-55	8745	4040	1556	3149	46.2	17.8	36
1955-56	9272	4292	1622	3358	46.3	17.5	36.2
1956-57	10713	5345	1778	3590	49.9	16.6	33.5
1957-58	10711	5098	1863	3750	47.6	17.4	35
1958-59	12043	6093	1938	4012	50.6	16.1	33.3
1959-60	12459	5120	2105	5239	41.1	16.0	42
1960-61	13335	6965	2549	3821	52.2	19.1	28.7
1961-62	14085	7202	2751	4132	51.1	19.6	29.3
1962-63	14903	7369	3007	4527	49.4	20.2	30.4
1963-64	17089	8543	3478	5068	50	20.4	47.6
1964-65	20148	10410	3898	5840	51.7	19.3	29
1965-66	20801	10194	4218	6389	49	20.3	30.7
1966-67	24078	12142	4692	7244	50.4	19.5	30.1
1967-68	28312	15013	5132	8164	53	18.2	28.8
1968-69	28862	14635	5548	8674	50.7	19.2	30.1
1969-70	31877	16049	6392	9436	50.3	20.1	29.6
1970-71	34519	17307	6790	10422	50.1	19.7	30.2

Appendix I - (cont d.)

1	2	3	4	5	6	7	8
1971-72	36863	17935	7464	11465	48.7	20.2	31.1
1972-73	40572	19750	8220	12602	48.7	20.3	31
1973-74	50749	26579	9470	14700	52.4	18.7	28.9
1974-75	59737	28889	12008	18840	48.4	20.1	31.5
1975-76	62634	27732	13170	21413	44.5	21.1	34.4
1976-77	66987	28395	15029	23563	42.4	22.4	35.2
1977-78	75769	32550	16953	26260	43.0	22.4	34.6
1978-79	81279	33368	18988	28923	41.0	23.0	35.6
1979-80	88219	34225	21130	32864	38.8	24.0	37.2
1980-81	106209	42425	24430	39351	39.9	23	37.1

Appendix II

Net Domestic Product At Factor Cost - at 1970-71 Prices (in crores)

					Percentage distribution		
Year 1	Total 2	Primary 3	Secondary 4	Service 5	Primary 6	Secondary 7	Service 8
1950-51	16798	9996	2770	4032	59.5%	16.4%	24.1%
1951-52	17128	10125	2820	4183	59.1	16.4	24.5
1952-53	17733	10580	2891	4262	59.6	16.3	24.1
1953-54	18882	11387	3038	4457	60	16	24
1954-55	19371	11528	3167	4676	59.5	16.3	24.2
1955-56	19969	11697	3326	4946	58.5	16.6	24.9
1956-57	21071	12322	3498	5251	58.4	16.6	25
1957-58	20625	11707	3521	5397	56.7	17	26.3
1958-59	22381	13087	3585	5709	58.4	16	25.6
1959-60	22768	13012	3774	5982	57.1	16.5	26.4
1960-61	24360	13874	4027	6459	56.9	16.5	26.6
1961-62	25186	14008	4334	6844	55.6	17.2	27.2
1962-63	25583	13651	4619	7313	55.3	18	26.7
1963-64	26916	14061	5088	7767	52.2	18.9	28.9
1964-65	29026	15303	5477	8246	52.7	18.8	28.5
1965-66	27335	13255	5623	8457	48.4	20.5	31.1
1966-67	27524	13117	5660	8747	47.6	20.5	31.9
1967-68	29993	15092	5844	9057	50.3	19.4	30.3
1968-69	30778	15156	6114	9504	49.2	19.8	31
1969-70	32692	16080	6636	9976	49.1	20.2	30.7
1970-71	34519	17307	6790	10422	50.1	19.7	30.2

Appendix II - (contd.)

1	2	3	4	5	6	7	8
1971-72	35028	17199	6961	10868	49.1	19.9	31
1972-73	34502	16129	7212	11161	46.7	20.9	32.4
1973-74	36203	17317	7362	11524	47.8	20.4	31.8
1974-75	36624	16998	7541	12085	46.4	20.6	33
1975-76	40155	19195	7930	13030	47.8	19.7	32.5
1976-77	40355	17924	8700	13731	44.4	21.6	34
1977-78	44045	20075	9359	14611	45.6	21.2	33.2
1978-79	46446	20598	10039	15809	44.4	21.6	34
1979-80	43880	17921	9743	16216	40.8	22.2	37
1980-81	47405	20164	10006	17235	42.5	21.1	36.4

Appendix II-B

Method used for getting the Sectoral Distribution at 1970-71 Prices

For the years 1950-51 to 1980-81, the figures for Total NDP at 1970-71 prices are available in the NAS.

We have tried to find out the sectoral distribution at 1970-71 prices in the following way.

(a) For the years 1970-71 to 1980-81, the sectoral distributions at 1970-71 prices is available in the NAS.

(b) For the years 1960-61 to 1969-70 we take the sectoral distribution for 1970-71 at 1970-71 prices, and at 1960-61 prices, and divided the former by the latter to get the ratio. Thus we have,

Sectoral Distribution for 1970-71, at 1970-71 prices as

Primary sector = 17307 crores
Secondary sector = 6790 "
Tertiary sector = 10422 "

and at 1960-61 prices as

Primary sector = 8752 crores
Secondary sector = 4319 "
Tertiary sector = 6211 "

For each sector, we divide the former by the latter and get the ratio to be

1.98 for the Primary sector
1.57 for the Secondary sector
1.68 for the Service sector.

Using these ratios for the appropriate sectors, we convert the sectoral distribution for the year 1960-61 to 1969-70 at 1960-61 prices, into a series at 1970-71 prices. If we add the NDP of all the sectors we get the Total NDP. In case of difference between our Total NDP and the one given by NAS, the difference has been distributed on a prorata basis.

(c) For the year 1950-51 to 1959-60 we take the sectoral distribution for the year 1960-61 at 1960-61 prices, and this we divide by the sectoral distribution for 1960-61 at 1948-49 prices. The ratios which we get are as

Primary sector	-	1.18
Secondary sector	-	1.22
Service sector	-	1.08

We use these ratios on the series 1950-51 to 1959-60 at 1948-49 prices. Thus we get a series at 1960-61 prices. This we convert into 1970-71 prices, by the method mentioned in (b). As following the above method, in case of difference between our Total NDP and the Total NDP given by the NAS, the difference is distributed on a prorata basis.

Appendix III

Method for calculating the Composition of growth in India

(a) We take the NDP series at 1970-71 prices. As a first step, we take the years from 1950-51 to 1960-61. The Incremental NDP is found out for each of the sectors separately. The sectoral incremental NDP is added to give the Total Incremental NDP.

The percentage share of each of the sectors is found out. This gives us the composition of Growth for the decade. The same exercise is repeated for 1960-61 to 1970-71 and 1970-71 to 1980-81.

(b) To find out the composition of growth for the entire period, Sectoral Incremental NDPs are found out for the entire period, as the above mentioned procedure is adopted.

Appendix IV

Gross Domestic Capital Formation -
(1970-71 prices, Rs. crores)

					Percentage distribution		
Year 1	Primary 2	Secondary 3	Service 4	Total 5	Primary 6	Secondary 7	Service 8
1950-51	548	383	1448	2379	24%	16%	60%
1951-52	757	753	1294	2804	28%	26%	46%
1952-53	624	492	722	1838	34%	27%	39%
1953-54	724	369	1034	2127	35%	17%	48%
1954-55	592	475	1296	2363	25%	20%	55%
1955-56	845	971	1507	3323	26%	29%	45%
1956-57	862	1477	1932	4271	20%	35%	45%
1957-58	889	1263	1936	4115	22%	31%	47%
1958-59	839	710	1833	3382	25%	21%	54%
1959-60	665	1239	1837	3741	18%	33%	49%
1960-61	856	1579	2088	4523	19%	35%	46%
1961-62	775	1503	1862	4140	19%	36%	45%
1962-63	891	1805	2112	4808	19%	37%	44%
1963-64	943	1851	2286	5080	19%	36%	45%
1964-65	1148	2067	2366	5581	21%	37%	42%
1965-66	1267	2390	2513	6170	21%	38%	41%
1966-67	1136	2746	2793	6675	17%	41%	42%
1967-68	1111	2247	2781	6139	19%	36%	45%
1968-69	1194	1925	2639	5758	21%	33%	46%
1969-70	1385	2479	2813	6677	21%	37%	42%
1970-71	1457	2735	2985	7177	21%	38%	41%

Appendix IV - (contd.)

1	2	3	4	5	6	7	8
1971-72	1534	2814	3199	7547	21%	37%	42%
1972-73	1630	2417	3028	7075	23%	34%	43%
1973-74	1779	3185	4108	9072	20%	35%	45%
1974-75	1530	3610	3403	8543	18%	42%	40%
1975-76	1685	3375	3594	8654	20%	39%	41%
1976-77	2385	3093	4042	9520	26%	32%	42%
1977-78	2706	4059	4025	10790	26%	37%	37%
1978-79	2787	4776	4526	12089	24%	39%	37%
1979-80	2383	4827	3604	10814	23%	44%	33%
1980-81	2845	4927	4118	11890	24%	41%	35%

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