CHAPTER - I

INTRODUCTION
Introduction

Productivity is said to be a major indicator of resilience of an economic system. Even the rise and fall of economies, and hence, swings in the fortunes of civilizations are explained through levels of productivity. Credit for a buoyant United Kingdom economy during the first two decades of 20th century is given to its relative higher level of productivity. Similarly the high German productivity in 1920s through mid 1930s led to the emergence of a strong national economy of Germany. Comparative advantage of its productivity during the period 1948-73 gave the United States an unrivalled economic position in the world. Japan has been able to penetrate the world market during 1970s in a bigger way only through higher level of productivity.

Productivity is, of course, a vital indicator of economic performance. In more pragmatic terms, it is a prime determinant of economic well-being, especially as it affects job creations, the balance of payments, the rate of inflation, and, perhaps most important, as it determines future economic development.¹ Productivity is a complex but key indicator of a nation's well-being.

The change in productivity is both a cause and result of many dynamic forces operating within the economy - technical progress, accumulation and improvement in the quality of both human and physical capital, enterprise, government regulation, capacity utilisation etc.¹

It is understood that higher productivity is not an end in itself. In fact, it is a mechanism for improving the material quality of life. Increased productivity can finance increases in income and can further improve the quality of life by checking inflation and by enhancing the competitiveness of the products. Competitiveness, both quality and price wise can increase the exports of the country with resultant benefits for the economy. Countries which fail to keep pace with productivity gains of other countries find it difficult to retain their place in the international trade. This may force these countries to devalue their currencies. Increased productivity enables the expansion of sales to other countries, permits specialisation and economies of scale beyond the scope afforded by domestic markets. This improves the standards of living which is the goal of all nations. In fact, anywhere and everywhere when men struggle to make a life for themselves and their children, it is higher productivity more than harder labour on which they must rely. In this war, too - a war far greater and much much older than our

generations' hot and cold wars - the importance of productivity is recognised.\(^1\) Productivity is fundamental to progress throughout the world. No war, no treaty, no discovery, no single invention can match the achievement of a nation, which is inspired to produce efficiently. To quote Fabricant, "anyone who looks around the world today, even casually, or has followed the course of economic development of some country, knows that the richer people of globe are not rich because they work longer hours or work harder, or work both longer and harder. The situation is quite the contrary. The rich work less, not more, and not as hard; the poor work more, not less and they work harder. It is evident that the major source of the differences around the globe in average real incomes per capita is the differences in labour productivity".\(^2\)

Productivity is at the heart of economic growth and development, improvement in standards of living and quality of life. An examination of almost all the important issues in society would show that it is key to the solution of most of the problems. It touches all sections of society whether government or citizens, employers or employees, big industrial units or small industries, profit organisations or public utilities.

In view of the importance of productivity for attaining and then maintaining high levels of income and standards of living, it becomes important to understand the factors which are sources of productivity growth and could prove to be responsible for low productivity, or its decline. It needs to be kept in mind that in translating this theme of productivity, a good deal of variations do exist in the social and economic perspective of each individual country.

At the outset, it should be made clear that productivity, although it is a technological relationship between inputs and outputs cannot, and indeed should not, be treated independently from the socio-economic environment within which the concept permeates into the policy framework of national development either as a means to accelerate the process of material advancement or as an end. A clear recognition of the differences in the socio-economic environment among nations is important because of the fact that, explicitly or implicitly, the approach to productivity is governed by the respective national objectives and priorities which again are derived from the environment. A list of factors either hindering or promoting productivity is relevant only if such factors are identified within the framework of these national

objectives and priorities, lest analytically similar phenomena may lead to conflicting interpretations and vice-versa.¹ Thus, the role of various sources of productivity growth or factors which hinder or help productivity may differ from country to country. Depending upon the socio-economic environment factors which may be playing an important role in one country may not be playing any role in another. Such differences are likely to be there between a developed country and an under-developed or developing country. As a matter of fact, productivity growth can not be independent of the nature and pattern of economic growth, therefore, identification of factors that hinder or help productivity will also depend upon plan objectives and priorities.

Furthermore, the role and significance of any such factor cannot be the same at all levels. A particular aspect which could be identified as a factor operating at one level, say firm, may on further analysis turn out to be only an expression of a cause or factor operating at another level, say industry or economy. For instance, take the case of a factor like power shortage experienced at the unit level which could be a consequence of either inadequate resource commitment to power development or lack of capacity utilisation in the power sector, which in turn, may be due to a variety of reasons including shortage of materials, inadequate infrastructural facilities, transmission difficulties etc. A judgement as to which

of the above constitutes the basic factor hindering or promoting productivity depends on the classification of activities that are under enquiry and also the level of aggregating of activities i.e. the economy, broad sector, industry groups and working units. With such a clarity, it is worth while to identify main sources of productivity growth.

Sources of Productivity

Changes in output per unit of input or productivity result from a wide range of developments. Productivity is influenced by a large number of sources and not by a handful of determinants. Any factor which reduces the waste in any form, or increases efficiency can be called a source of productivity. Anything notable happening in the society or economy may be helping or hindering productivity. For example, increase or decrease in crime may hinder or help productivity. Crime is one source of lost labour. Under-trials or prisoners represent the loss of available human resources, which could have been productively employed in the creation of wealth for the society. In this sense growing violence and crime in society - political or non-political - will reduce productivity. In other words, peace, tranquility and reduced crime will be a source of productivity. According to one estimate 25 per cent reduction in the proportion of the population in prison or engaged in crime, in the year 1980 as compared to the year 1. Ibid., p.136.
1957 would have increased the 1980 national product of the United States by 0.18 per cent and its 1960-80 growth rate by 0.01 per cent. However, the concern here is with the main sources of productivity and its growth.

1. Changes in the Capital/Labour Ratio

It is recognised that as the capital per worker tends to be high, there tends to be an increase in labour productivity. For increase in this ratio, usually, capital input should grow at a faster rate as compared to labour input. If due to any reason, say, due to increase of number of births, better survival due to increased health facilities, failure to popularise family planning measures, or increased longevity of life, growth of labour input is higher than growth in labour input, the ratio and thereafter productivity will decline. Capital input for the purpose should be measured in real terms.

In the United States, most analysts have accorded a significant role to slowing growth of capital per worker or per hour in explaining the productivity slowdown. In particular, in a careful study, Randy Norsworthy of the Bureau of Labor Statistics also estimated that this variable contributed a 0.4 percentage point to

---

the slowdown between the subperiods 1948-66 and 1973-78\(^1\) i.e. the same as estimated by Kendrick. However, Robin Seigal has estimated a somewhat larger contribution of 0.6 percentage point using the subperiods 1955-65 and 1973-78.\(^2\)

Since increasing amounts of capital per worker raise the productivity of labour, it is obvious that a slowdown in the growth of capital input as compared to labour inputs would decline the growth of labour productivity. The growth in capital input and labour input, in turn is influenced by number of factors. Denison\(^3\) also recognised it as an important source of economic growth. Ostry and Rao\(^4\) noted that the increase in the capital labour ratio accounted for nearly 7 per cent productivity growth in Canada during 1957-66.

2. **Improvement in Technological Knowledge**

Over the long run, by far the most important source of productivity growth is advances in technological knowledge applied to productive processes and instruments.\(^5\)

---

1. Ibid., p.6.


3. Denison, op.cit., p.103.


Development and application of cost-reducing innovations to machines and methods of production can make significant contributions to the efficiency. Improved goods and services also contribute to productivity and welfare.

Technological knowledge consists of knowledge concerning the physical properties of things, and of how to make, combine or use them in a physical sense. The role of technological innovations like steam engine, electricity, tele-communications, electronics, automation, petro-chemicals, atomic energy and computers in economic development and improvement of productivity hardly needs an emphasis. In many developed countries technology is regarded as single major factor for substantial productivity improvements.

Technological progress, primarily is attributed to research and development (R&D). The estimated contribution of R&D to productivity growth in United States fell from near 0.9 to around 0.6 percentage point between the periods 1948-66 and 1973-78. It is not only the formal R&D which makes contribution to productivity growth, inventive and innovative activity of part-time inventors, improvement made by managers and workers at plant level makes its own contribution.

1. Ibid. p.9.
Ostry and Rao\(^1\) attributes 37 per cent of total productivity advances in Canada during the period 1957-66 to technical progress. However, experience in developing countries have been somewhat different. It is realised that technology, per se, is not the answer to economic problems. It is an essential input and has to be in conformity with the scales of production and the organisational environment and its basic needs. Technology must bring about a fusion between employment, output and return on resources deployed, on a continuing basis. If not appropriately applied, technology may slacken generation of new employment, jeopardise the environment by deterioration in the quality of work life and may fuel inflation. The recent disaster in the Union Carbide Plant at Bhopal is a gruesome experience of technology that prevailed over environmental considerations unleashing human suffering of a size that has no precedence.\(^2\)

It may be noted that this source of productivity has a peculiar international character. Scientific discovery, theory, knowledge of new products, materials, techniques, procedures and practices that are developed anywhere, quickly spread to other countries, especially to all developed countries.

1. Ostry and Rao; op.cit., p.50.
3. Improvement in 'Managerial' Knowledge

Improvement in productivity does not take place only due to advancement of knowledge of technology. Improvement in the knowledge of managerial and organisation techniques also contribute considerably to the productivity growth. One example is the reduced requirement of inventories due to better materials management and inventory control techniques. Managerial knowledge consists of advances in knowledge concerning the techniques of management, construed in the broadest sense, and in business organisation.

Advances in managerial knowledge are not always reflected in measured growth of productivity, like that of improved designs of houses. However, it is recognised that managerial improvements predominantly are cost reducing and do affect measured growth of productivity. In the long run advances in knowledge may become increasingly difficult to achieve, as the level of knowledge advances more input may be required to sustain the rate of improvement. In fact, in the advancement of technological, managerial and organisational knowledge, important role is played by education.

4. Education

Evidently, additional or higher education increases an individual's contribution to production and
his own earnings. Denison\(^1\) noted that education had made a major contribution to economic growth of United States during the period 1929-57. He observed that 23 per cent of the growth rate of national product was the direct contribution of more education. While relating contribution of additional education to the growth of national product per person employed he estimated that education contributed 42 per cent of the 1.60 percentage point growth rate in product per person employed. Increased education is not only one of the largest sources of past and prospective economic growth, it also is among the elements most subject to conscious social decision.\(^2\) To enhance productivity over long run appropriate changes in the area of education have to be consciously planned. Initial thrust in a developing country like India may be on quantity of education. When increase in its quantity slackens, improvement in the quality of education may be sought. However, it be remembered that affect of education on output is dispersed over a very long period and that it contributes in more than one way. For example, by advancement in knowledge and improvement in quality of labour.

5. **Demographic Changes**

Changes in demographic variables is another

---

source of changes in productivity. Some of these variables are:

(i) **Age and Sex Composition of the Labour**

Age and sex composition of the labour force affect its average quality, understandably, even in Western countries certain institutional barriers work against the placement of women in better paying positions which adversely affects their contribution. Similarly, employment of more youth may adversely affect the average quality of labour as they are yet to improve their contribution by "learning by doing". Ostry and Rao\(^1\) estimated that in Canada 'employed youth and females' as a percentage of total employment increased from 33.29 in 1966 to 43.81 in 1973 and that the contribution of this demographic variable was to lower the growth of total labour productivity by 0.36 per cent per year.

Similar affect was noted by Kendrick\(^2\) during the periods 1948-66 and 1966-73 in the United States due to greater number of youthful entrants into the labour force and accelerated increase in female labour participation. However, he estimated that the affect of these shifts was diminishing during 1973-78 and was likely to be reversed

---

1. Ostry and Rao; *op.cit.*, pp. 54-55.
2. Kendrick; *op.cit.*, p.12.
during 1980s. According to estimates given by Denison, the shifts in the age-sex composition of total hours worked, reduced the 1973-81 U.S. growth rates by a substantial 0.21 percentage points.

On the contrary, if more women take up employment on permanent basis, they may make contribution nearly equal to that of men by "learning by doing". Denison noted relative increase in the contribution of women in the United States.

According to Denison, the composition of labour force is governed by deep-seated and persistent forces. There is little opportunity to influence the nation's growth rate by policy action intended to influence labour force composition directly... output could be promoted by elimination of artificial obstacles to full utilisation of the capabilities of women, but quantitative possibilities do not appear significant. However, in India, attempt is being made to change quantitative participation of women through reservation which will also change the composition of the labour force. In the long run this should improve the productivity as quantitative improvement will lead

3. Ibid., p.83.
to better utilisation of capacities of women and ultimately qualitative improvements will also take place.

(ii) Changes in the Quality of Labour

Number of factors improve the quality of labour, which in turn improves the productivity. In fact advances in knowledge, technological or of other types, education and training, changes in age sex composition, changes in the value of women's work all improve the quality of labour. These have been discussed earlier. Further, more changes in attitudes, physical stamina, health, reliability and intensity of work taking place independent of education, training, age or experience etc. contribute to improvement in productivity. However it is extremely difficult to measure the contribution of such elements. Kendrick\(^1\) estimated that the rising proportion of GNP devoted to health and medical outlays in the United States resulted in increases in "health capital" per person that have contributed 0.1 percentage point to productivity gains in each subperiod i.e. 1948-66, 1966-73, 1973-78.

After all people are a part of nations' capital. Adam Smith\(^2\) included all the acquired abilities of population of a country as a part of its capital. However,

investment in human capital cannot be of much help, in promoting economic development and productivity growth, unless the process of economic development is already under way and the people have reason to accept its utility.  

6. Changes in Hours of Work

When working hours are reduced or shortened the product turned out in an hour usually increases as a direct consequence of changes in hours. According to Denison, "As hours are shortened, the offset in greater labour efficiency must progressively decline and at an increasing rate". Therefore, reduction of working hours beyond a point will not be desirable for welfare and productivity as the increased efficiency due to shortening of work hours will not be able to offset the decrease in production due to lesser number of total working hours. Welfare and productivity per man/day is the greatest when workers work to the point at which the additional disadvantage of extra work and less leisure just equals the value of additional production contributed or income earned.

Increased marginal productivity per worker may lead to demand for higher wages. Perloff and Watcher estimated that in the United States a 10 per cent drop in

2. Denison; op.cit., p.38.
the labour aggregate due to reduced working hours would increase labour's marginal product by 10.5 per cent in the short run before making adjustments in the capital stock. Since total hours would fall less than the wage increased, the total wage bill would rise by approximately 10 per cent. Berndt and Christensen\(^1\) analysed that reduction in working hours for blue collar workers or white collar workers are more complementary with capital than blue collar workers. Decision regarding appropriate number of working hours are quite difficult.

7. **Changes in Quality of Land**

In modern days, the availability of total land to a nation is unlikely to undergo a change as frontiers of all countries despite disputes are clearly determined. But the productive land resources may undergo a change. For example, the barren land may be converted into productive land by making irrigation facilities available and use of fertilisers etc. However, the quality of land could undergo a change. Improved irrigation and agricultural technology, accessibility of distant land due to improved transport facilities etc. will improve the quality of land. On the other hand continuous extraction

---

of minerals, cutting of timber and erosion etc. may deteriorate the quality of land. Denison did not attach much importance to quantity and quality of land as a factor helping or hindering productivity. However, Kendrick\(^1\) noted its role in agriculture and extractive industries of United States. But he estimated that"... this reduced the overall rate of productivity advance by only 0.1 percentage point from 1966-73, and 0.2 from 1973-78".

8. **Reallocation of Resources**

The shift of resources of given types from uses, firms, industries and regions with lower rates of remuneration to those with higher rates increases real product and productivity.\(^2\) The real national product is largest when every individual productive resource is employed where its marginal value product and thus income is the greatest. However this criterion is not applicable in case of labour. According to Denison, "The individual worker's welfare is greatest when he is employed not at the highest available wage but in the position that offers the most attractive combination of earnings, type of work, work schedule and working conditions, prospect for future employment and advancement, geographic location, and all other conditions...

---

2. Ibid., p.13.
affecting his work and life". Further, "The equilibrium allocation of resources is constantly changing. This is partly because the resources themselves change - workers gain in experience and skill or lose vigor with age, land is eroded, buildings and tools wear out. It is also because the demand for resources shifts as a result of changes in patterns of final demand and in productive techniques, of the rise and fall of firms, of inventories, of changes in the supply of the factors of production, and a host of other influences; most of these are inherent in the process of economic growth itself. Output can be increased (1) if economical means can be found to speed the movement of employed resources as changes occur in the equilibrium allocation, and (2) if unemployment of resources during the transition can be reduced". However, optimum allocation and reallocation is not possible due to various impediments to mobility of resources like lack of information, monetary costs, loss of fringe benefits like pension, lack of desire to change job and place in the case of labour, restrictive practices etc.

Wherever reallocations according to changed equilibrium equation would be made, productivity growth is

1. Denison; op.cit., p.182.
2. Ibid, p.201.
likely to improve. Jorgenson and Gollop\(^1\) estimating for various types of capital in more than 50 industry groups of the United States, found that reallocations added 0.4 percentage point to growth in 1948-66 and somewhat more in 1966-73 period. Denison\(^2\) estimated that a smaller gain from improvement in resource allocation in US during 1973-81 accounted for 0.33 percentage points of the decline in growth rate. Planning Commission has attempted to reallocate resources to achieve certain socio-economic objectives. The impact of these efforts on productivity is a good empirical question. Attempts to reallocate resources is an integral part of Indian economic planning.

9. Regulations

Another of the frequently diagnosed causes of the productivity growth malaise has been economic regulation, especially the new regulations directed towards health and safety standards, pollution controls, zoning restrictions, product standards, and the like. It has been argued, for example, that regulations reduce productivity growth by diverting capital and research expenditures away from more


productive uses, by inducing long delays into the innovative process and by slowing the adoptions of new production techniques (Meadows 1978). An alternative view, that regulations, if used in an appropriate manner, may serve to stimulate the innovative process, and hence increase potential productivity growth, has also received some attention (Allen et al. 1978).¹

It is understood that health and safety regulations increase business inputs and costs without increasing measured output. Denison² estimated that the negative impact of environmental, health and social regulations reduced U.S. productivity growth by 0.13 during 1967-73 and 0.35 during 1973-76. In the long run safety regulations should contribute to productivity growth due to improved quality of labour. Economic regulations, especially those aimed at reallocation of resources should improve productivity.

10. Economies of Scale and Increased Specialisation

Productivity would be affected by economies of scale and increased specialisation. The proportionate increase in output for every increase in input(s) will have an important bearing on the output-input relationship i.e. productivity. However for an economy as a whole, it

---

1. Quoted from Ostry and Rao; op.cit., p.52.
is unlikely that any slight diseconomies of scale are not offset by economies of scale elsewhere. They are mainly the result of increased specialisation. Greater specialisation of labour and capital goods may arise within the industrial units and industry or specialised establishments providing goods and services to various industries or industrial units may be set up. However, as stressed by Adam Smith, the division of labour is limited by the extent of the market. Economies of scale have been credited with one-eleventh of growth in the United States during the period 1929-57. Its contribution is estimated at 0.41 percentage points to its 1948-73 growth rates.

11. Entrepreneurship and Social Attitudes

Entrepreneurship - the processes of innovation and acceptance of the risk of lose in the hope of profit along with social attitudes is another important factor which determines the productivity. Many economists often report that lack of the willingness on the part of individuals to make innovations to generate a process of change is the greatest obstacle to the initiation of process of growth and productivity in underdeveloped countries.

Kaldor\(^1\) said that "the most plausible answer to the question why some human societies progress so much faster than others is to be sought, in my view, not so much in fortuitous accidents... or in favourable natural environment... but in human attitudes to risk taking and money making... the innovating entrepreneur is found to have an honourable place, or even a key role in the drama...".

Attitudes prevailing in the society at a given time will determine whether or not environment is conducive to productivity growth. The attitudes prevalent in a non-industrial society will hinder productivity in the initial years of industrialization. However, in the opinion of Denison\(^2\), the growth rate of entrepreneurship is unavoidably taken to be the same as that of capital and land combined and its contribution included with theirs.

12. \textbf{Irregular Factors}

Irregular factors affecting productivity and its growth are erratic and generally it is difficult to make any forecast regarding them, at least over a longer period. According to Denison, "The estimate of the effect

of irregular factors upon output per unit of input covers three determinants. Two - the effect of weather upon output, and the effect of work stoppages - are rather minor, but the third is often important. This is the effect of changes in the intensity with which employed labour, capital, and land are used that results from fluctuations in demand. These changes are related to the business cycle, but swings in productivity usually run substantially ahead of those in total output or unemployment. He estimated that irregular factors subtracted 0.18 percentage points from 1948-73 growth rate. Obviously, during any given period productivity is greatly influenced by the intensity with which resources are used. Fluctuations in the intensity of use are the biggest influence introducing cyclical movements into output per unit of input. It is pertinent to note that the role of two irregular factors found to be insignificant in U.S. Economy by Denison i.e. weather and stoppage of work, may be significant for the Indian economy.

13. Miscellaneous Determinants

Miscellaneous determinants of productivity are generally those specifiable determinants, whose effect is


either not quantified or is taken as negligible or even zero. Denison in his works has listed 6 to 7 main miscellaneous groups of determinants. He identifies the seven main groups of miscellaneous determinant as:

1. Changes in personal characteristics of workers, especially how hard they work.

2. Changes in the extent to which the allocation of individual workers among individual jobs and of capital among individual types of capital departs from that which would maximise national income.

3. Changes in the gap between actual production technique and best technique that results from obstacles imposed by governments, labour unions, and others outside the firm.

4. Changes in the cost of "business services to government", such as collecting taxes or providing statistics.

5. Changes in the adequacy of "government services to business", such as police protection, courts and roads for business use.

---

6. Changes in aspects of the legal and human environment within which business must operate that affects cost of production by business and which are not identified as specific determinants.

7. Changes in productive efficiency that takes place independently of changes in any of other determinants identified.

He further examined additional causes those may be affecting miscellaneous determinants, like the attitude that the "people don't want to work any more", improvement of efficiency by inflation, rise in energy prices, the "shift to the services" and other structural changes and possible errors in data.

In his estimates of productivity growth for U.S. economy for the period 1948-73, Denison analysed that important contributions were made by advances in knowledge, increased education, increased capital-labour ratio, resources reallocation and economies of scale. Reduction in average hours of work and shifts in age-sex composition were the main negative factors.

1. Denison in 'Explanations of Declining Productivity Growth', Brookings General Series Reprint 354, 1979, treated changes in the legal and human environment as an independent determinant and did not include it in miscellaneous determinants. He examined advances in knowledge and miscellaneous determinants as residual elements.

2. Denison; op.cit., p.4.
It is noteworthy that all the sources of productivity growth discussed above are proximate determinants. These in turn may be influenced by multiplicity of factors. For example, if the energy (say oil) continues to become costlier, the use of energy and capital in production may be decreased as generally energy and capital enter production as complementary items. Lesser use of energy and capital will increase the use of labour and reduced capital-labour ratio will show its affect on productivity. Similarly the rate of capital formation will affect productivity through capital-labour ratio. In this sense the list of sources of productivity is not exhaustive. Furthermore, many fundamental underlying factors like changes in social values, institutional forms and practices and incentive systems etc. exert their pressure through intermediate casual forces.

Determinants of Productivity at Micro/Organisation Level

While examining the sources of productivity and its growth due importance has to be given to factors effecting productivity at micro or organisation level. It is only by perfecting these sources/factors that the effect of increased productivity could be felt at macro/national level. The sources of productivity at national level play their role in one way or the other at organisational level. Factors with their roots in economic climate, markets
and social change etc. are usually not influenced by organisational decisions. These are in a way uncontrollable variables for individual organisations while factors with their roots in technology, organisation, information, rewards and people are internal variables for organisations and can be influenced by their decisions.

Organisations productivity is greatly influenced by technical and human factors. Sutermeister has summed up most of the factors effecting productivity at micro/organization/individual level in a diagram. The diagram given on the next page explains such factors.

In reading the diagram it should be kept in mind that

1. The diagram consists of a series of concentric circles, each divided into segments.

2. The size of segment does not reflect its relative importance. The relative importance, in fact, may differ for each organisation and even each individual employee.

3. It is deemed that the factor in each segment of each circle affects or determines the factor(s) in the corresponding segment of the next smaller circle.

4. The factors in each segment of each circle frequently affect and are affected by factors in some of the other segments in the same circle.

5. The factors in each segment of each circle may also affect factors in segments elsewhere in the diagram.

6. All factors in the diagram are subject to change with time, especially individual's needs and formal organization.

**Concept of Productivity**

As part of self-protection, feeding and bringing up their offsprings, work is performed not only by man but by animals and birds as well. In fact many species, for example tailor bird and bees, perform their work with great technical skill and at times with elaborate division of labour. While motions for performance of work are developed and inherited through countless generations, the conscious planning, shaping and development of appropriate work motions are specific to mankind.

For man, work is an instrumental activity that requires inputs and produces results. The effectiveness of work as expedient activity is primarily manifest in the fact that it reaches its goal. But if, in addition, it is also remembered how much time and resource input was
required in the process, in a way its' efficiency, the productivity of labour is already being considered. However, it was long time before the very notion of productivity was born requiring countless steps in the development of conceptualization and logical thinking.¹

In earlier accounts of economic history the terms productivity was hardly used. However, in a way, Plato—while discussing 'division of labour' and Aristotle while talking about 'use value and exchange value' were referring to productivity. When Adam Smith referred to efficiency and specialization and productive work as a source of wealth of nations, he was using a concept similar to the one, what today is called productivity. Karl Marx also fully elaborates the importance of productivity from the point of view of social and economic development. The thoughts of Marx on the development of society and the economy, the motive forces of this development, like technical progress, the increase of productivity, the dialectic relation of productive forces and production relation have long since grown into an historic force.

The growth of productivity and its promotion through various measures was already manifest even before defining the term productivity. However, productivity was not assigned a really major role in economic activities

before 20's and 30's of present century, although from the end of last century productivity measurement has been gradually gaining ground, particularly in the United States. The world economic crisis, following the first world war focused the attention on reducing losses and increasing economic efficiency.

Despite these years, productivity is still considered to be a hazy concept. The literature is replete with definitions and explanations of productivity, giving thereby an impression that there is no agreed upon definition of the term or at any rate an element of ambiguity persists in dealing with the concept. Perhaps these different definitions are legitimate, and indeed necessary, for different purposes. The result of this is that two persons talking about productivity may be talking about quite different things.

It is interesting that despite so much concern about productivity, there is no universally accepted definition of what productivity is, that is, there is no single set of measures or indicators which a business or government agency can use to measure its productivity. In fact, different measures are used in different situations. The reason for this is that some of the questions relating to productivity are best answered with one kind of
productivity measurement and others with another kind. Different measures of productivity for different situations also add to the confusion relating to the concept of productivity.

Referring to terming of total factor productivity as "a measure of our ignorance" by Abramovitz and as "residual" by Domar, Sudit Ephraim F and Finger Nachum said, "This terminology alludes to the basic, inevitable fact that productivity is conceptualized and defined to reflect, in aggregate, whatever is not understood or is misunderstood about sources of growth in real output. In other words given our present state of knowledge and data availability, the sum total of the portion of the growth in real output that cannot be accounted for by changes in specific identifiable inputs is thrown into the productivity "wastebasket".

Many of the difficulties of productivity analysis can be traced to this indirect conceptualization and measurement of productivity as our residual ignorance. By definition, we cannot explain what we do not know. Thus, public exhortions for deliberate efforts to "improve the rate of growth in aggregate productivity suffer from an underlying contradiction in logic. We simply cannot hope to affect consciously something that is
defined to measure our lack of knowledge". This explains the type of confusion in these regarding concept of productivity.

However, there is rather clear acceptance of the fact that productivity should be thought of as a ratio concept - the ratio of the output of goods and services produced or generated by an organization divided by the input used to produce them.2

Definition

Productivity as is understood in common parlance, is the output per unit of input employed. In other words it is the output/input ratio. Therefore the basic definition of productivity is the ratio of output to input3 or simply

\[
\text{Productivity} = \frac{\text{Total Output}}{\text{Total Input}}
\]

In the broader sense it is the relationship between a given output and the means used to produce it. It is the relationship between a flow of output produced and the things which are used to achieve that flow of


output. It is generally defined in terms of the efficiency with which inputs are transformed into useful output within the production process.

Productivity of course encompasses a far broader spectrum of concepts - including not only production inputs and outputs but also human resources and the efficiency with which employees' skills can be used through a variety of managerial approaches. Thus in broader sense productivity should comprise all those factors which give greater results of production or output with the smallest use of resources in order to make a higher contribution to the economy. The term resources is used here in a generic sense to include time, money, labour, machines, raw material etc., or to put differently to the factors of production.

According to Kopleman, perhaps the most widely accepted definition of productivity is the physical process conceptualization used by many economists. He said that "productivity is the relationship between physical output and one or more of the associated physical inputs used in production. Broadly conceived - it is a systems concept:

it can apply to various entities, ranging from individual or machine to a company, industry or national economy."

Kopleman's definition is a good one as it brings out that it is the ratio between output and any one or more of input(s). It further brings out the wide applicability of the concept to all entities i.e. individual, machine, company, industry and national economy. It improves upon the definition given by the I.L.O. in the sense, that it clearly states that it could be the relationship between output and any one of the inputs. I.L.O. defined productivity as the "ratio of the output of wealth produced and the input of resources used up in the process of production." When single input is used to measure productivity, it is called 'factor productivity' and when all factors are combined together for the purpose, it is known as 'total factor productivity'. Generally, factor productivity is determined in relation to the input of labour. In fact, labour productivity is so commonly used that it has been suggested that when the term productivity is used without further qualifications, the productivity of labour is understood.¹

Obviously, there is little difficulty in accepting the concept or definition of productivity

primarily as an output-input ratio, since it is the underlying thought in all the definitions, the problem seems to be of its measurement. Really speaking differences regarding the concept of productivity are in fact differences regarding its measures.

**Measurement of Productivity**

Measurement is a means of control and manipulation. It is purposeful, not neutral, shaped by social structure, not independent, distorted by intellectual conventions, not unbiased.¹ Measurement is essential in almost all aspects of life. It is essential for stitching clothes, working out interests, dividends, taxes, fares, rents, work schedules, beginning of the retirement pension, performance in examination and almost everything. Some people believe that what cannot be measured, does not exist. Measurement is necessary for controlling. If productivity is to be improved, there is need of control and for control it must be measured.

The objective of productivity measurement is to develop information more and better information - that, alongwith other information will be helpful in the difficult task of improving the economic welfare.² According to the

definition of productivity, it is measured by the ratio relationship between output and input; where numerator is the measure of output and the denominator is a measure of one or more inputs combined. It is clear that to measure productivity firstly output and input must be measured. The measurement of the output does not present any difficulty so long as the output is homogeneous, as is the case of mining extractive industries. It may be measured in physical units or in monetary value by introducing unit price. However, this is rarely so. Generally, output is collection of heterogenous products. If the material relationship exists between these products and if it is measurable, the products may be added up by using conversion co-efficients. Otherwise the only way out is the use of values as intermediaries.

While measuring factor productivity, unit measuring input can be used. But measuring total factor productivity poses many problems, as factors of input are always heterogenous like labour, capital, material etc. For this reason labour productivity as a measure of productivity is more popular than total factor productivity. In fact, many inputs are difficult to measure and are therefore deliberately ignored in computations.

The problem of measuring productivity is further compounded when more than one measure of an output/input is
available. For example, while measuring labour input(s), the most important available options are:¹

- Workers;
- all employed;
- within the number of workers;
- those engaged in the basic production process, or
- the so-called productive workers.

The practice and preference in use of a measure of input may differ from economy to economy while in socialist countries, the number of workers employed are usually taken to mean solely in the field of material production, in the market economies as well as in certain special analyses in the socialist countries, productivity is also calculated with regard to all employed, i.e. including those in the tertiary sector.

The choice of measure may also be influenced by certain other factors for example, the measure of labour. Input of labour chosen may not be the same in case of a developed country, with lesser population and high rate of employment, and a developing country having large population as well as unemployment.

¹. Roman Zoltan, op.cit., p.48.
Measuring productivity in relation to a single input, makes the task much easier and simple. The most popular single measure of productivity is the productivity of labour. Rostas\(^1\) maintains that labour productivity is the most important measure of productivity. It is also recognized that productivity of labour is influenced by the combined effect of a large number of separate though interrelated factors such as the amount and quality of equipment employed, technical improvements, managerial efficiency, diffusion of advances in technical knowledge, the relative contributions of units at different levels of efficiency as well as skills and efforts of labour. Change in labour productivity, in this sense, represents the contribution of all these factors to productivity growth. However, use of any single input in the measurement of productivity can be criticised as an insufficient explanation and only a part of the productivity story.

Measurement of total factor productivity is based on the economic theory of production.\(^2\) Quantities of output and input entering the production function are identified with real product and real factor inputs as measured for social accounting purposes. Obviously, measurement of total factor productivity will be influenced

---

1. Quoted by M.V.V. Raman, in Productivity and Economic Growth, National Productivity Council, New Delhi, 1972, p.11.
by assumptions and limitations of production function and social accounting. Identification of separate inputs and outputs, method of their aggregation, errors and their correction assigning of appropriate weights where required, adjustments for quality changes, choice of appropriate price index for deplation etc., further complicate the calculation of total factor productivity. Individual preferences at various points can vary the results computed considerably. In the debate between Jorgenson and Griliches and Denison on the explanation of productivity change in the U.S. there was sharp contrast in the results obtained. Jorgenson and Griliches estimated the contribution of productivity growth at 0.10 per cent during the period 1945-69 while Denison estimated it at 1.37 per cent.

According to Denison, "The Jorgenson-Griliches estimates of the contribution of capital and land to GNP growth differ from mine because of (1) differences in weights; (2) differences in the initial method of measuring capital and land inputs, including the difference in method of estimating the contributions of dwellings; (3) their substitutions of price indexes; and (4) a utilization adjustment they introduce". Further, measurement will depend upon the availability of data and its reliability.

1. Ibid., p.37.
2. Ibid., p.17.
There are differences over the issue whether productivity indices should be used for comparisons, especially international comparisons, or it should be measured in absolute terms. O.E.C.D.\textsuperscript{1} favours measuring productivity in absolute terms despite inherent methodological and statistical difficulties.

\textbf{BANKING AND THE INDIAN ECONOMY}

Money or finance is an important and necessary factor for economic development. Though finance is by no means a substitute for real resources, it has a crucial role in the economic development of the country. Its importance lies in the fact that it places at the command of those who have the technical skill and entrepreneurial talent but lack in other means to acquire the capacity missing factors necessary for development. Money has been compared to a road over which all the produce of a district passes to the markets but which does not itself produce a single blade of anything. The role of bridging the gap between those who have money or savings and those who need it, is played by financial institutions. A sound financial infrastructure consisting of a spectrum of financial institutions of diverse types is a necessary precondition for effecting the transfer of funds from savers to investors. This facilitates the process of economic development through capacity creation and income generation.

The segment of capital and money market dealing with lending and borrowing of funds, essentially for short term purposes, is represented by commercial banking institutions. Commercial banks act as financial intermediaries i.e. intermediaries of savings and investment. Savings intermediation is a process by which flow of savings of the community is allocated to finance investment in the economy. This process brings about consistency between the asset preferences of the households, the ultimate savings units, and the liability preferences of business firms, the fundamental investing units. Bank, although a financial intermediary, does not act like an agent who puts a borrower in touch with a lender. According to Crowther 'It collects money from those who have to spare or who are saving it out of their income and it lends this money out to those who require it. This is valuable and necessary in any community'.

However, the role of commercial banks is not limited to savings and investment intermediation; they are also the main instruments of credit creation. The role of commercial banks in economic development is exemplified by their principal function of credit creation. Banks are repositories of savings, and not safe deposit values. The unique function of the banker and the one that makes him

important is the provision of a convenient machinery by which people can make payments to each other without having to walk round to each other's house with bags of coins. And in providing this mechanism he also provides, or creates money itself. He has discovered the secret, for which medieval alchemist strove, or manufacturing money\(^1\). But credit creation is only an instrument and just a part of the process of furthering economic growth. A lot will also depend upon how the credit is utilised.

The importance of commercial banks in the process of economic development has been recognised by all and sundry. Commercial banks play an important role in all economies. The role becomes more important in planned or developing economies like India. Really speaking, it is difficult to imagine, how an economic system will function without services of banks. Banking Industry is the blood vascular system of our economy. It has a positive role to play in the economic development of the country as repositories of people's savings and purveyors of credit, especially as the success of economic development depends on the mobilisation of resources and their investment in an appropriate manners.

In a country like India, constitutionally committed to socialistic pattern of society - banks have

\(^1\) Ibid., p.26.
important role to play i.e., in the reduction of regional disparities, which is an important objective of the economic planning. A very significant measure to reduce regional and state-wise disparities would be to reduce the imbalances in the credit deposit ratios in the various states.\(^1\) In fact it is revealed that the nationalised commercial banks have narrowed down inter-state differentials during the period 1972-82.\(^2\)

To quote Bhabha, "Banking is the kingpin of the chariot of economic progress. As such its role in expanding economy of a country like India can neither be underestimated nor overlooked. The success of our plan is dependent among other things, on the smooth and satisfactory performance of the role by banking industry of our country".\(^3\)

**Development of Banking Industry**

'During the period following the second world war, a number of important developments in Indian banking have taken place. The banking structure... is very much stronger and considerably more sophisticated as compared to what it was at the end of the war'.\(^4\)

---

2. Ibid., p.24.
During the second world war, there was mushroom growth of bank offices. The number of bank offices increased from 1951 in 1939 to 5335 in 1945. The growth was primarily quantitative, unplanned and uncontrolled, like the wild growth of plants in a jungle. Ultimately some of these were bound to die under the shadow of others. During 1939-45, on an average a bank failed every sixth day. Banking by its very nature greatly relies on public confidence. The frequent failure of banks shook the faith of depositors. This endangered the banking structure as in this field the weak could weaken the strong; the collapse of weak itself weakened the other and better institutions'. Partition of the country gave another jolt to Indian banking structure.

The state of affairs forced Government to enact the Banking Regulation Act 1949, mainly for the purpose of protecting the interest of depositors. In fact, a comprehensive banking legislation covering the organisation, management, audit and liquidation of banks was recommended by Indian Central Banking Enquiry Committee 1931.

The commencement of the process of planned economic development in 1950-51, meant that the Indian economy had to achieve certain predetermined targets in terms of the rate of growth of national income. In turn, this required stepping up the rate of savings, effective
mobilization savings and investing them in an appropriate manner in the various sectors of the economy. As the structure of financial institutions which existed then was not adequate from the point of view of mobilizing savings and channelling them in the desired manner to various sectors. One of the major tasks before the country was to develop this structure.\(^1\) Role of pillars to this structure was to be performed by banks. Change was the demand of the period. It was the price of survival and the banking system as the fulcrum of the economic system was ready for the changes.

The most striking feature of the changing banking scene has been the decline in the number of commercial banks and a very remarkable rise in the number of branches. The process of weeding out sub-standard non-viable banks which started with the recommendations of the Travancore-Cochin Bank Inquiry Commission (1956) was accelerated after the failure of two scheduled banks in 1960. A number of small banks which had developed at small towns, were absorbed into larger banks with the result that as the number of smaller banks declined the number of branches of bigger banks increased. The number of banks decreased from 566 at the end of 1951 to 36 at the end of June 1971.\(^2\)

\(^1\) *Ibid.*, pp. 16-17.
\(^2\) *Ibid.*, p. 34.
During this period, in accordance with the recommendations of the All-India Rural Credit Survey Committee (1951-52) the undertaking of the Imperial Bank of India was transferred to State Bank of India on July 1, 1955 (with the exception of assets and liabilities of foreign branches). During 1959-60, eight banks of erstwhile states were brought under Government control as subsidiaries of State Bank of India. Due to amalgamation of the State Bank of Jaipur and the State Bank of Bikaner into the State Bank of Bikaner and Jaipur on 1st January 1963, the number of subsidiaries were reduced to seven.

Not satisfied with 'Social Control' Government of India nationalized 14 major commercial banks each having a deposit of Rs.50 crore or more on last Friday of the June 1969, with effect from July 19, 1969. The measure of nationalization of the commercial banks was taken with a view to achieve certain social objectives. According to the preamble of the Banking Companies (Acquisition and Transfer of Undertakings) Act, 1970, the banks were nationalised, "in order to control the heights of the economy, and to meet progressively and serve better, the needs of development of the economy in conformity with national policy and objectives and for matters connected therewith or incidental thereto". Six more banks were nationalised on April 14, 1980, bringing the
number of nationalised banks to 20 and public sector banks to 28.

**Concept of Productivity in Banking**

Till recently, the banking industry as a whole had given emphasis on deposit mobilisation, credit deployment and branch expansion. Even branch expansion was emphasised in the post nationalisation period. However, slowly, the emphasis started shifting to efficiency and productivity. It is recognised that with increasing emphasis on priority sector lending of social banking, it will not be possible to increase profit without improving efficiency and productivity. As emphasised by PEP Committee, "Banks being business organisations profit should continue to remain an important consideration. At no time should their operations result in a loss and act as a drag on the Government revenue. The net result of the promotional activities which they are being called upon to undertake should not partake the nature of subsidy grants". Under the given circumstances profit can be improved by improving productivity.

The concept and definition of productivity as applied in manufacturing industries can not be applied in banking industry, which is primarily a service industry.

---

It provides varied services like acceptance of deposits, extension of credit, remittance of funds, collection agencies, conduct of foreign exchange business, safe custody and lockers, merchant banking etc., and thus, is a multiproduct service industry. This makes the identification and measurement of output extremely difficult. It enabled service industries like banking to avoid the question of productivity for a long time. However, as the economies growth the importance of services or tertiary sector increases, making it difficult to ignore its efficiency and productivity.

Moreover, being an important economic activity, it can not afford to lose sight of the concept of productivity or operational efficiency.

The application of the concept becomes all the more difficult in a country like India. According to the Report of the Committee to review the working of Monetary System (1985), "the concept of operational efficiency of a commercial bank in India is associated, with such diverse aspects of its operational cost effectiveness, profitability, customer, services, priority sector lending, mobilisation of deposits and deployment of credit in rural and backward regions and so on. Operational efficiency in banking has attained a wider connotation. Precisely for this
reason, a generally acceptable definition of the concept and selection of appropriate indicators are beset with difficulties. Nevertheless improvement in the productivity in all aspects of banking operations has to be pursued by banks as an important management objective as it vitally affects the efficiency of the monetary system.

Shanmugam also expressed the view that it is a hazy concept and "that it is not an easily identifiable phenomenon in the banks". In his opinion it is due to a multiproduct service industry character of the banking industry, in which raw materials - both men and money - can be stretched indefinitely. Furthermore, it operates in a highly controlled environment and its performance greatly depends upon the performance of the economy. The difficulty is not in applying the broader concept of productivity as ratio of output and input, but is in measuring output in the form of services.

**Measurement of Bank Productivity**

As banks produce services, the measurement of their output may pose conceptual difficulty. Given the banking industry's particular characteristics, the development


2. Ismail, Abdul Halim; 'Productivity in Banking and Finance'. Banker's Journal Malaysia, October 1982, p.34.
of commonly accepted measures of productivity comparable to those used in other industries has lagged behind somewhat.¹

Sherman², recognised that service business productivity is often more difficult to evaluate than manufacturing business productivity, because it is difficult to determine the efficient amount of resources required to produce service outputs. He expressed the opinion that measuring the productivity of service businesses like banking, requires techniques that are more sensitive than accounting and ratios measures, and that can explicitly consider the mix of service outputs produced.

Obviously, productivity measurement in banking centres around the basic issue of quantifying the output of commercial banks.³ There are several important dimensions to the issue. Firstly, the traditional approach based on portfolio management of funds makes it more of a managerial problem. Secondly, the output of commercial bank is financial in nature and not tangible goods. This sometimes

² Sherman, H. David; 'Improving the Productivity of Service Business'. Sloan Management Review, Spring 1984, p.11.
may cause confusion in distinguishing the output from
the inputs of banking activity.\(^1\)

As the traditional approach to evaluating
banking activities characterised them as one of portfolio
management of funds, its productivity traditionally has been
identified with the size of working funds and profits.
However, productivity and profitability can move in
different directions, for example, profit may be earned
due to market conditions despite declining productivity.
'Profitability is the product of two components: productivity
and price recovery'.\(^2\)

Despite being an important parameter for measuring
productivity - profit for all practical purposes, while
measuring bank productivity in India, has lost its prime
position. This has been so, particularly since the 1969
nationalisation of 14 major commercial banks. After
nationalisation, banks were asked to undertake ever
increasing responsibilities as catalysts to social change.
In discharging this new role as agents of social change,
operating units of the banks has hardly any choice with
regard to the mix of business, in so far as it is related

1. Subrahmanyan, Ganti; 'An Approach to Inter-Bank
Productivity Comparisons', Prajnan, Oct-Dec. 1984, pp.381-
392 and Bank Economist Meet, Collection of papers
presented at the Madras Conference 1984, pp.306-313

2. Krem L A. and James W. Trotter; 'Productivity
Measurement: An Important Step in the Profit Equation'.
to social lendings, in conformity with national priority. Further, output of a service industry is the service rendered to customers. Whether the customer is satisfied from the service or not is extremely difficult to measure because of the subjectivity involved.

While on the one hand as a measure of productivity, profitability got relegated to the background, on the other, the importance of volume of business went up considerably at both micro and macro levels as it became progressively imperative to secure more resources for meeting the social objectives while maintaining viability of operations.

Therefore, business levels are preferred as being more representative of productivity. This is further reinforced by the following points:

1) Notwithstanding the diversified functions performed by banks in modern times, acceptance of deposits and lending of money are the characteristic functions of a bank.

2) Profit is subject to larger fluctuations due to variety of causes whereas business levels generally show a steady pattern.

3) A large number of branches in rural and semi-urban areas are engaged in what may be called social banking with targetted levels of performance irrespective of profitability.
iv) The social lending as well as other activities of a bank would directly or indirectly depend upon its capacity to lend. This in turn would require the bank to mobilise larger deposits on ongoing basis for meeting the ever increasing demands of funds.

The growing importance of business is recognised not only in India but also in Western countries. Obviously, in this multiproduct service industry using numerous inputs, where quantifying some of them is extremely difficult, it is not possible to develop a single reliable indicator of productivity. Therefore, a set of indicators will have to be used. These indicators should be simple and easily understandable.

With this approach productivity may be studied with resources or inputs identified as (i) Number of employees, (ii) Number of branches and (iii) some resources converted in monetary terms like total expenditure. The ratio of various parameters of business and operating results with identified inputs will measure productivity. For example, deposits, credit, business, total income, total expenditure, spread and establishment expenses per employee will measure labour productivity.¹ Similarly,

¹ According to Banking Commission, 'For measuring productivity of the employees, it will be necessary to fix man-hours required (Officer and clerical) for various types of jobs'. Report of the Banking Commission 1972, p.333.
average productivity per branch indicating utilisation of resources, will be measured when the ratios some of these parameters per branch are worked out.

Financial indicators of productivity which can be used are total earnings as percentage of total advances, establishment expenses as percentage of total expenditures and total earnings, average volume of business per rupee (or Rs.100) of establishment expenses, business per Rs.100 of total expenditure etc. These ratios indicate productivity of all the resources converted into monetary terms i.e. expenses.

Other measures of productivity which may be used are comparison of growth of deposits and expenses per employee, working fund to establishment expenses, deposit accounts per employee, credit accounts per employee, deposit and credit accounts per employee, vouchers per employee, percentage change in operating earnings in relation to percentage change in operating costs, contribution per employee to profits, revenue generated per man-day or man hour and costs incurred for the same etc. Indicators or measures of productivity used by PEP Committee are given in the Appendix I.

It needs to be remembered that it is not possible to give an all exhaustive list of productivity
indicators. Measures of productivity at bank and industry level may differ from the indicators of productivity at branch level. Specific indicators of productivity in relation to each operation performed can be developed. Similarly, the indicators of productivity in relation each objective of bank may be developed. Obviously, the measurement of productivity in relation to social banking goals can not be the same as in relation to traditional commercial goals.

Further, measurement of productivity as indicated by indicators can be improved by use of various statistical, and econometric techniques. Use of these techniques can be particularly useful in inter-bank and inter-temporal comparisons and also when concept of total factor productivity is used. Use of Kendric measure\(^1\), Solow measure,\(^2\) Domar measure,\(^3\) Tinbergen measure,\(^4\) Jorgenson and Nishimizu measure,\(^5\) to measure total factor productivity

---


have been suggested. Measurement of total factor productivity will require assigning of appropriate weights to various inputs and outputs.

American Bankers Association in the light of the opinion that "effective use of productivity measurement and improvement techniques requires a comprehensive, total productivity model" developed a 'Bank Office Total Productivity Model' (See Appendix II) and suggested measures of total factor productivity. However, ordinarily partial productivity indicated by per employee, per office, and some financial indicators can be relied upon. In fact these are popular all over the world. According to Cunnigham, the universal yardsticks of banking economies are, profit per square foot and profit per employee.

To quote PEP Committee, "There is no such thing as a single index of operational efficiency of banks. It has many facets which are complimentary as well as substitutive. The emphasis laid on each will also keep on changing with reference to time. To attempt reducing them into one dimension will be devoid of content and may at times be misleading".

2. Cunnigham, G.W.W.; Regional Director South Asia, Annual Report, Grindlays Bank (India Branches), 1985.
3. PEP Committee, op.cit., para 4.16.
Limitations

In addition to the limitations to measurement of productivity in banks which are obvious from the discussion so far, following limitations of measures of productivity are notable:

1. In a service industry only marketable product is service and its productivity depends more on quality than on quantity.

2. The performance of banks as compared to other industries greatly depends upon the performance of entire economy, especially as it is administered by Government policy, RBI directions etc., the volume of output of banking industry rises automatically without any rise in output due to inflation.

3. Treatment of deposits poses problem. It is an output when it is being mobilised but is an input when used for extension of credit. It may be noted here that "the unique feature for banks on the input side is that funds gathering activities such as deposit taking are not final corporate outputs. These activities are on exchange of value or service for the use of depositors money and are, therefore, intermediate steps. Attracting
and managing these deposits, and their suppliers, is merely a procurement process, not a product."  

4. Storing of bank product is not possible and no forecast regarding demand can be made as nobody knows when will the customers turn up at branch. In such a situation fixing standards for quality performance becomes difficult.

5. In a multiproduct service industry, it becomes difficult to compare productivity, when one unit is performing better is one product line and the second unit in another.

6. Industry norms become untenable due to product differentiation and diversity in size and age of different banks as well as their branches.

7. Several measures are used to compute bank productivity, each one telling a partial story. At times these measures may indicate conflicting patterns of performance. Such possibility is more in case of Indian banking, where too much emphasis in credit deployment is being given to socio-economic goals.

8. Many factors having a bearing on the indicators of productivity do not get attention in the

productivity measurement. In fact, it is difficult to take into account their impact.

To elaborate a few examples are given below:

i) The staff, main input measure is not recruited on year to year basis in accordance with the business growth. The imbalance between recruitment and business growth will distort results.

ii) Similarly, variation in the manpower utilisation rate either due to recruitment or branch expansion policy may result in higher or lower staff costs.

iii) Service costs are lower in case of term deposits as compared to demand deposits. As the composition of deposits is becoming more favourable towards term deposits lesser input may be required. Productivity will be higher without any extra effort.

iv) Age and composition of the staff has a bearing on the labour establishment costs.

However, despite difficulties and limitations it is worthwhile to measure bank productivity as it is better to be approximately right than being absolutely ignorant.
In the end it may be said that facts on productivity are among the fundamental facts of economic life. It touches all - nations, industries, services, industrial or services units, employers, employees, consumers and individuals. Studies in economic growth and productivity have clearly brought out that growth and consequent material welfare have coincided with the advance in productivity. The productivity of a country, industry or a unit is difficult to measure, because so many interrelated variables influence the end result. It is not difficult to understand it as the ratio relationship between output and input, but problem begins with the identification and measurement of output and input. The problem is further aggravated when the concept is applied to a multiproduct service industry like banking, especially the Indian banking, which operates under a highly controlled environment to achieve socio-economic objectives, by reaching and helping the common man - symbol of India's progress and the aim of stupendous tasks of growth and development. This is to be achieved without losing the sight of its commercial and economic viability. Productivity in banking becomes important, because with industrial growth the proportion of value-added being generated by the service sector will increase. And as the country moves in this direction, it will no doubt adopt concepts
of productivity in the service industry, as is done in the manufacturing industry. As the most important part of the services sector, banks will have to take the lead in applying the concept of productivity and measuring it. Remembering that if it is to be improved it must be measured; despite all the difficulties, deficiencies and limitations.