INDUSTRIAL ECONOMICS

Lessons: 1 to 20

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and

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CONTENTS

DSE Course Code: ECON245

INDUSTRIAL ECONOMICS

Credit	Lecture	Tutorial	Practical
6	4	2	0

Course Outcomes

By the end of the course, students will be able to:

- have the knowledge of different theories of international trade and their applications.

- to know about impact of dynamic factors on international trade.

- have the knowledge of various policies related to international trade besides, role of international trade organizations.

- attain the knowledge of balance of payment and determination of exchange rates.

- have the knowledge of capital requirements of developing countries both in short and long run.

- have the knowledge of Financial institutions like IMF, ADB, IFC and IDA.

Unit – I

Scope of industrial Economics. Organization of industry. Changing forms of industrial organization. Process of industrialization: Rationale, objectives, strategies and polices. Employment implications of industrialization. Appropriate industrial technology for LDSLs. Industrialization and economic development. Patterns and phases of industrial growth and changes in industrial structure. Environment pollution on (its types, sources and effects), Public goods and bads, unmarketed goods, externalities. Resource depletion, problem of social cost.

Unit – II

Theory of firm and pricing. Objectives of the firm: profit and non-profit maximizing models of the firm. Bais theory of limit pricing; Marginal cost versus full cost pricing; Allocation of costs in case of joint products; Welfare implications of monopoly pricing. Investment decision; conventional and modern approaches; risk, uncertainty and investment decision. Economic Evaluation of Environmental Resources Measuring environmental damage (Valuation Methodologies). Irreversibility and the optimal use of natural environments (irreversibility in economic processes, irreversible Decisions and exhaustible resources, irreversible investment and project evaluation, determining the discount rate, inter-generational transfers determining the discount rate, inter-generational transfers and uncertainty). Divergence between social cost and private and uncertainty.

Unit – III

Market structure, conduct and performance and interrelations among them. Industrial concentration: concepts and measurement; Extent, causes and likely effects of concentration. Analysis of diversification, Vertical integration and mergers in industry. Extent of monopoly and concentration in India; Public policy towards industrial concentration and monopoly power in India. Environmental Management Models: Environmental control under uncertainty. Economics of pollution control. Economics of renewable resource harvesting (Optimal policies of fisheries, optimal rotating forest). Efficient allocation of renewable resources through time.

Unit – IV

Industrial location: Theories and factors affecting location; infrastructure for industrialization; Regional growth of industry in India. Tools of public policy. Indian policy for backward areas. Industrial finance in India. Role of termleading institutions in industrial development of India. Indian capital market. Environmental costs of economic growth. Problems of rural and urban environmental planning. Resource management to fulfil environmental, social and economic objectives. Dilemma in environmental planning (poverty Vs. Environmental quality, social aspects, legal aspects, financial aspects).

Unit – V

Issues in Indian industry: Phases of industrial growth and changes in industrial structure India. Public sector rationale and organization; Public sector pricing policies. The question of efficiency in the context of special constraints; Overall performance of public sector in India. The concept of joint-sector in India. The problems of industrial sickness; Capacity utilization. Foreign collaborations; Multinationals in Indian joint ventures aboard. The recent liberalization trends. Large versus small scale industry debate in India. Policies for Environmental Planning, Role of voluntary organizations. People's participation in environmental management, Resource conservation (conserving soils, protecting forests, materials substitution, product life extension. Recycling materials conservation.

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INDUSTRIAL ECONOMICS

STRUCTURE

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1.   Introduction

This series of lessons deals with a branch of Economics known as Industrial Economics. In comparison to some branches of this subject, such as microeconomics, macroeconomic, development economics, etc. Industrial economics in its present form is a relatively young branch of this discipline. However, the seeds of Industrial economics had been sown in *Adam Smith's Wealth of Nations* (1776),that is almost at the beginning of the first Industrial Revolution which originated in England almost at the same time as the publication of the aforementioned book. Major steps in the development of this branch of Economics seem to have been taken by Alfred Marshall through the publication of his particularly two books, viz. *Principles of Economics* (1890) and *Industry and Trade* (1919). But in this initial budding of the subject it was hardly distinguishable from the development of microeconomics. Yet, as will be noted below, currently Industrial Economics has emerged as a separate and a distinct branch of the subject.

It is felt that in this evolution of Industrial Economics one of the earliest influences were the Garman Historical School's and American Institutional School's emphasis on the role and significance of institutions and environment peculiar to a society in shaping the Economic behaviour of economic units such as firms. Later in the 1930, Chamberlin in the U.S.A. and Mrs. Joan Robinson in England lent realism to the theory of the firm and industry by pointing out that the market structures of perfect competition and monopoly which had dominated discussion till then were special cases while the actual market structure- called monopolistic competition by one and imperfect competition by the other- lay somewhere in between these

two extremes. This development in microeconomics was a further step towards the development of industrial economics subsequently. Another significant step in this direction was an empirical study of business behaviour carried out 'The Oxford Economists Research Group' and reported by R.L. Hall and C.I. Hitch in an article in *Oxford Economic Papers* (1939). This study had marked the beginning of importing more realism into the analysis of microeconomic problems and generated an interest in the development of Industrial Economics as a separate branch of our subject.

In the U.S.A. a separate course by the name of industrial organization had in fact started at the Harvard University in the early 1930s. J.S. Bains, who was later to contribute a good deal in the development of this branch of economics, was one of the Ph.D. students at Harvard at about this time.

By the early 1950s, the foregoing evolutionary process had made it possible to launch Industrial Economics as an independent branch of economics. In fact, in 1952 a *Journal of Industrial Economics* started publication in which P.W.S. Andrews wrote an article titled "Industrial economics as a specialist subject". In this article, Andrews had brought out the nature of this new branch of economics in these words: "Economics needs a workable theory of the behaviour of the individual business. This approach will only be found through empirical work on actual business. If we wish to theorize fruitfully about individual businesses, we must find out what are the facts about their behaviour and then construct a general theory especially in order to take account of those facts." J.S. Bain had also subsequently stressed that in Industrial Economics "emphasis is directly on empirical study concerning issues raised by price theory, or on the implementation, application and critical testing of such theory".

It is thus clear that Industrial Economics is concerned with the study of the theory and hypotheses related to business behaviour and the empirical testing of such theory and hypotheses. The branch of economics has emerged from a marriage between theory and practice of business behaviour, especially that of manufacturing enterprises. It certainly studies the theory of such behaviour but it eschews abstract model building because its ultimate objective is to rationalize and systematically explain as well as understand the motivations and processes operating behind that behaviour.

2.   Learning Objectives

After going through this lesson, you will be able to:-

- Understand the meaning of Industrial Economics

- Understand the scope of Industrial Economics

- Understand the Organisation of Industry

- Understand the changing forms of Organisation
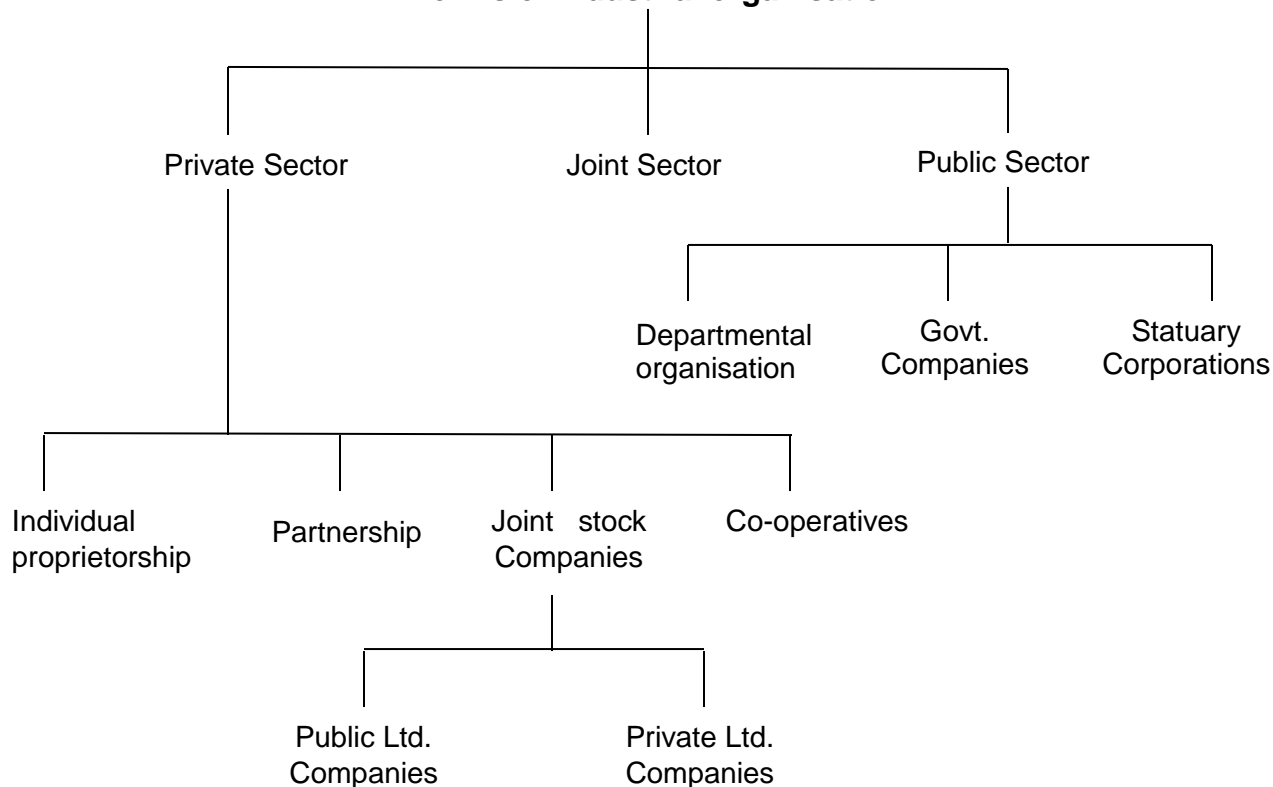
3.   Scope of Industrial Economics

As states above, industrial Economics is a study *par excellence* of business behaviour. It is not merely a description of that behaviour. Rather, it examines the validity of the theories

and hypotheses that microeconomics, business Economics or managerial economics sometimes put forth on an a *priori* (i.e. analytical) basis. This type of theorizing takes some assumptions or postulates as self-evident and widely accepted truisms from which follow the propositions of the theory. For instance, in the traditional microeconomics, atomistic competition, rational behaviour and profit maximization are taken as indisputable assumptions on the basis of which certain deductions are made on the behaviour of the firms and industries. But the methodology of industrial economics is different. The foregoing neo-classical tradition of microeconomics is taken as the basis of analysis but it is tempered by a more inductive (empirical) form of analysis based on the use of case studies and institutional forms of investigation as also the use of more formal methods of statistical hypothesis-testing. In industrial economics, therefore, we find an example of a happy marriage of theory and empirical reality. The main emphasis in this branch of economics is upon understanding and explaining the working of existing firms, industries and markets and thereby being able to predict the effects of changes in variables of these institutions.

CHART

Forms of Industrial organisation

Industrial Economics thus attempts to study the theory of the firms form its operational, organizational, institutional and behaviouristic angles. It studies the structure, conduct and performance of the markets. It studies those principles which determine the size of the firms and factors which underline the location of industrial enterprises. From the operational and behaviouristic angles the principles and methods of price and output setting by firms vis-à-vis their objectives also come in from examination. In recent years, the modern evergrowing

corporation has attracted a good deal of attention in industrial economics. The focus of attention in this respect has been in particular the ownership-control relationship within the modern corporation, the mechanisms commonly at work in its growing size, the intercorporate relationships (i.e. relationship of big corporations within an industry with each other) and the impact of the foregoing behaviouristic aspects of the corporation on such variables as prices, output, sales and profits. There are also some applied (as against theoretical) aspects of industrial economics such as the role and the share of industrial activity. Besides, in the wake of the realization by a large majority of countries and societies the world over that until recently they had been by passed by the industrial and technological choice and the very objectives that should underlie the process of change in this direction, have also become a part and parcel of the study of industrial economics. Thus the scope and subject matter of this branch of economics has tended to widen over the past about four decades. Initially, there were problems in justifying the need of having such a branch of the subject, since traditional microeconomics, with suitable changes in it in the 1930s, seemed to adequately deal with nearly identical subject matter. However, a desire to make the subject more realistic and to bring it nearer the actual business behaviour led to the adoption of a different methodological approach, viz, that of inductive empiricism (where data collected from real world situations and analyzed so as to derive theories and hypothesis therefrom) in industrial economics. This is in sharp contrast to the deductive or a priori methodological approach adopted in traditional microeconomics. Besides, with the passage of time the subject matters of microeconomics and industrial economics have tended to deviate from each other. Some of the issues now coming to the fore in industrial economics have rarely been addressed to in microeconomics. For instance, business behaviour is fairly well perceived and analysed in microeconomics at a level higher than the market or industry. But in industrial economics business behaviour is fairly well perceived at the industrial sector level, especially when the issues of technological choice, share of employment in total labour force or in GDP are taken up for analysis. In this particular case, industrial economics borders more on development economics than microeconomics. This in fact is an index of an expanding scope of industrial economics and its independent existence.

4.   Organisation of Industry

Before the industrial revolution industry remains organized in a peculiar form. Being a household industry, the organization is highly personalised of a tiny scale and lacking specialization of activities or division of labour. The same person or the household performs the functions of an entrepreneur, manager, capital supplier and worker. There is complete absence of regimentation and discipline (in terms of allocation of work and observance of duty hours) so typical of a modern firm. There is no clash of interests between capital and labour, employer and employee, or entrepreneur and the consumer of his product. This is because the same person or household combines in himself or itself the functions of entrepreneur, worker, employer, employee and capitalist.

After the industrial revolution all this has gradually changed, although in those economics or parts thereof (think of the slum areas of Indian cities or its far flung rural hinterland) where the production methods are still of the pre-industrialisation era, the old order has not changed. Thus industrial revolution at different stages has brought about changes in the form of industrial organisation. But first of all, what do we understand by the

term industrial organisation? Industrial organization refers to the pattern or the type of ownership and control of an industrial unit. It determines answers to such questions as who owns the firm; who bears its risks and uncertainties; and who takes the policy-decisions regarding what to produce, where to produce, how much to produce, where to sell the output and at what price, etc. The different forms of industrial organization usually seen in an industrial economy are shown in the Chart here. It would be seen in the Chart that in a particular country different forms of industrial organization may be found under all the three or any one or two of the broad ownership frameworks, viz. the private sector, the joint sector and the public sector. As in commonly known, under each of these sectors ownership of industrial units is private, private as well as govt., and only govt., respectively. In India, all the three broad frameworks or patterns of industrial ownership obtain. Then, as seen in the Chart, under each one of these patterns, separate forms of business organization have emerged. The characteristics of these may be briefly discussed below:-

(a) Individual (or Sole) Proprietorship:- Within the private sector, this is the original form of industrial organization, even pre-dating the industrial revolution in each country. And this form of business organisation has survived the industrial revolution as well. Individual proprietorship, as the name suggests, is a one-man business, where one individual owns and operate the productive enterprise. The owner provides his own and the family's labour as well as capital, as in the case of the household industry, or hires labour from outside and also borrows capital from other institutional or non-institutional sources, as in the case of the small scale industry.

The owner of an individual proprietorship firm earns a composite type of income which includes his profit, his wages of management and his own and family's labour, rental for the use of his own premises, and the return on his capital employed.

As industrial development attains higher levels in a country, the number of significance of sole proprietorships declines, particularly in manufacturing. But even in such countries, retail business and farming continue to be organized on this basis. In countries like India, were industrial development is still confined to a few cities and towns as well as parts of the country, individual proprietorship still accounts for a significant proportion of the total industrial activity.

A sole proprietor, as a form of industrial organization, has several merits such as its being easy to establish and even to wind up, the existence of personal contact between the employer and employees on the one hand, and the supplier and his customers on the other, the incentive to work hard and to save and invest more, the promptness in decision-making, the absence of industrial concentration and consequent lack of exercise of market power to exploit and to a mass disproportionate amount of wealth, etc. On the other hand sole proprietorship also had several demerits. These are: Its unsuitability at a higher level of technological development, its failure to reap economies of scale, its likelihood of being constrained by lack of access to desired quantities of finance, the risk of such a business being wound up at the death of the individual proprietor, etc.

(b) Partnership:- A sole proprietorship may be converted into a partnership when the scale of business or the requirements of additional finance so demand. Or, an entirely new business may be set up in partnership basis. Under this form of industrial organization,

several persons, but usually less than twenty, form a partnership. The liability of each partner to pay debts of the firm is unlimited. There are several types of partnership depending on the specific role of the partners in business. For instance, *active partners* contribute capital as well as actively participate in its day-to-day activities. On the other hand, *seeping partners* contribute capital and share in its profits but do not participate in its usual activities. The *nominal partners* lend only their name and some credit but neither contribute nor participate in its activities.

A partnership is usually formal in the sense that it comes into existence on the basis of a written agreement. But it may also be a *partnership-at-will* when it is merely informal in nature without any written agreement existing among the partners.

A partnership partakes of benefits of both sole proprietorship as well as a small joint stock company, but without the formal and impersonal features of the latter. It is a method of pooling financial and managerial resources as also the organising ability. Additionally, it enjoys most advantages of an individual proprietorship.

Its main demerits are: its relative lack of permanence (the death of a partner or dishonest dealings on the part of one of them may lead to its dissolution), the legal constraint of adding partners above the permissible limit, the unsuitability of this form of business organization for modern industry, and so on.

(c) Joint Stock Company:- This form of industrial organization is a product of the industrial revolution. It came into existence because a sole proprietorship or a partnership could not cope with the financial, managerial and organizational requirements of a modern industrial firm which has an inherent logic or ever growing of size and complexity. In fact, the company form of organization came to industry from foreign trade where such an arrangement is believed to have existed in the 13th or 14th centuries. Do you remember East India Company which was established in 1602 long before the first industrial revolution took place in Britain in the last quarter of the 18th century. But after the latter event, as the size of industrial firms increased, individual proprietorship and partnership forms of organisation proved too unequal in the task of operating industrial units of relatively large size.

The distinguishing features of company form of industrial organisation are: the companies are corporate bodies and they obtain legal status by registering with the Registrar of Joint Stock Companies; they sell their shares to the public and thus mobilise huge amounts of capital: with the death of any share holder the company does not cease operations: the liability of a shareholder to pay the company's debt is limited to the amount of share capital held by him in that company: at the time of registration of the company, the promoters of the company have to submit to the Registrar a Memorandum of Association (containing details about the company and its objectives) and the Articles of Association (containing the rules governing the running of the company).

As would be seen in the Chart given earlier, joint stock companies are of two types. A *public limited company* has the following characteristics: the minimum number of its shareholders is seven, but there is no upper limit on number of shareholders: the shareholders subscribe to the share capital and receive their share of profits periodically, but they do not take active part in running the firm of which each shareholder is a part owner;

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instead the shareholders delegate the powers of actual control and management to their elected representatives called the directors, though day-to-day work of the firm is looked after by the salaried managers: the shares of such companies are traded on the stock exchanges: and the public limited company has to publish its Balance Sheet, Profit and Loss Account and Annual Report annually.

On the other hand, a *private limited company* can be started by just two persons and the upper limit on the number of shareholders is fifty. Its shareholders are not free to transfer their shares to others. It cannot invite the public to subscribe to its share capital.

The chief merits of a company form of organisation are: its capacity to mobilise financial, managerial and organizational resources on any desired scale; its relative permanence, its attractiveness to the investors due to the advantage of limited liability, the ease for the investors to dispose of their stake in a particular company if it does fulfill their desire: the specialization of roles of investors, directors and managers according to their respective capabilities and inherent characteristics of this form of organisation to grow up to any size.

The major drawbacks of joint stock companies are: the divorce between ownership and control (where the interests of the two may well clash); emergence of the evils of industrial concentration and monopolistic exploitation with the growth in size of companies; the drawback of inter-corporate linkages through ownership and control and the consequent emergence of huge industrial empires the subjecting of the share of companies to speculative manipulation in the stock market and the helplessness of any individual shareholder in intervening in the working of the company of which he is a part owner.

(d) Cooperatives:- A cooperative form of business organisation has its own distinct characteristics such as: it is registered under a separate Act passed for this purpose: it is not formed with a profit motive, rather the motive is to provide service to its members who normally belong to a weaker section of the society; its share are purchased by its members but are not traded in the market; and the society is run democratically by its members. This form of business organisation is common is supply of credit, marketing, retail trade and house construction. Industry producers' co-operatives are formed, but in reality are not very common. Thus for purposes or modern industry, it is not a very relevant form of business organisation.

With the *public sector,* the main forms of industrial organisation are: the departmental organisation, the public corporation and the government companies. The characteristics and relative merits and drawbacks of these forms of organisation are not being discussed here. You may look up Suggested Reading No. 1 of this Lesson for this purpose.

5. Changing Forms of Organisation

We have discussed the different forms of industrial organisation. These originated at different levels (stages) of industrial development in response to the changing financial, managerial and technological requirements of each phase of such development. At a higher level of industrial and technological development the individual proprietorship or even partnership could not have adequately fulfilled its complex and multifarious requirements.

Thus the place of these forms of organisation was taken by the joint stock company. Even such companies have been qualitatively transformed with the passage of time. Not all, but several of the joint stock companies, by attaining progressively larger and larger size, have become huge corporations and even multinational corporations. Both small companies and large corporations have similar legal characteristics, i.e. those of a joint stock company as described earlier. But the two operate with different motivations (i.e. objectives of the firm), different intra-firm relationship (i.e. between the shareholders, managers and the directors of the company), and even the nature of the shareholders of the companies. In order to appreciate the nature of these changes which have occurred in the mature industrial economies in their profile of joint stock companies, let us consider the following facts.

In the present-day capitalist economies a large proportion of industrial output is produced by a relatively small number of absolutely large-sized firms. These firms are public limited companies. Take, for instance, U.K. where in 1981, just 859 large-sized firms (employing 500 and more workers each and some of them employing even more than 10,000 workers each) accounting for only 1.32% of the total manufacturing firms, among themselves employed as much as 66.28% of all the labour employed in the total number of firms. That means that an insignificant proportion of the total number of industrial companies had grown so much in sized that they were employing nearly two-thirds of the total number of workers employed in all the industrial companies. It is understandable that each of these large-size firms must also be really big in terms of capital invested in them and their output and sales. L. Hannah and S.J. Prais, in their separate books on the growth of large firms in Britain, have estimated that between 1909 and 1970, the share of the largest 100 industrial enterprises in total net manufacturing output of that country rose from about 15% to around 40 to 45% i.e. by nearly three times. We shall more fully deal with this question in a later Lesson which is concerned with industrial concentration. But the fact is clear that with industrial development it is the large corporation which really dominates the profile of industrial organisation in terms of employment and output produced.

The increase in the size of some of the joint stock companies is only one aspect of the change in industrial organisation which takes place as a country attains a higher level of industrial development. Another aspect is the divorce which occurs more and more between ownership and control of the really big firms. Along with that divorce comes about a conflict between the objectives which the shareholders and management pursue. This is however, a controversial issue into which we shall not go here.

Another change in the form of industrial organisation, studied by Nyman and Silberston (in an article titled, "The ownership and control of industry" in *Oxford Economic Papers*, March 1978, is in the shape of a fall in the personal ownership of joint stock companies and a rise in that of the financial sector (including insurance companies, pension funds societies, investment trusts, unit trusts, etc.). According to Nyman and Silberston, between 1957 and 1975, the share of persons in the total shareholding of British companies declined from 68% to 40% and that of the financial sector rose from 21% to 48%.

All these changes in the forms of industrial organisation have contributed to the evolution of an entirely new theory of the firm. Even a joint stock firm of the half a century ago is qualitatively different from the present day company. And it is clear that the old theory of the firm has become outdated. The present day theory of the firm, due to above mentioned

changes in the form of industrial organisation, has been addressing itself to an altogether new set of questions such as: who is the entrepreneur in the large corporation; what objective does a firm (i.e. its management) pursue; is there a conflict between the objectives of the shareholders and the management: what is the behaviour pattern of the corporate sector through which the coalition of individuals and groups of individuals within the firm try to resolve the potential conflict of their interests? And so on and so forth.

6.   Summary

Thus, in the present lesson you were introduces to industrial economics as a branch of the economic science, its definition, its scope, methodology and subject matter, as well as the forms of industrial organisation. You have noted that the forms of business organisation have changed tremendously since the first industrial revolution of Great Britain. This was but to be expected because of the changing demands of modern industry.

Exercise:

1.   What do you means by Industrial Economics?

2.   Define the meaning and scope of Industrial Economics?

7.   Glossary

- **Departmental Organisation:** Under this form of Organisation, business activities of the undertakings are organized, financed and controlled by the govt.

- **Govt. Companies:** Section 2 (45) of Companies Act, 2013. A govt. company means any company in which not less than 51% of the paid up capital is held by the central govt. or by any state govt. or partly by central government and partly by one or more state government.

- **Joint Stock Company:** A joint stock company is an organisation which is owned jointly by its shareholders.

- **Partnership:** A partnership is a formal agreement where two or more parties collaborate in a business venture, sharing responsibilities, profits and losses as outlined in partnership agreement.

- **Public Limited Company:** A public limited company offers shares to the general public and has limited liability.

- **Private Limited Company:** A private limited company is a privately held business entity held by private shareholders.

8.   Answers to Self Check Exercise

- Answer to Q1 Refer to Section 1.

- Answer to Q2 Refer to Section 1 and 3.

9. References/Suggested Readings

- Barthwal, R. (1984). Industrial Economics, 2 e, Wiley Eastern Ltd., New Delhi.

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- An Introduction to Industrial Economics. Routledge.

10. Terminal Questions

Q1. Define the scope of Industrial Economics. How does Industrial Economics differ from traditional microeconomics?

Q2. Discuss the various forms of Industrial Organisation.

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INDUSTRIALISATION AND ECONOMIC DEVELOPMENT

STRUCTURE

1.   Introduction

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10.   Terminal Questions

1.   Introduction

After having discussed the nature and scope of industrial economics in the preceding lesson, we take up the interesting questions of role of industrialisation in economic development in the developing world. During the immediate post-Second World War years, industrialisation was seen as a potent means of economic development by economists and planners in what were then referred to as underdeveloped economies.

But, first of all, let us notice what industrialisation stands for. Roughly speaking it is the process of growth of the factory system. More fully, it can be defined as the process through which (i) mechanical methods of production are introduces and perfected for processing of goods, (ii) the scale of production of firms rises progressively, and (iii) forms of business organisation change from individual enterprise or partnership to a joint stock or corporation form. Industrialisation transforms household enterprises into a factory system and then further into corporate managerial capitalism. In fact, industrialisation implies gradual passage from organisation of production on household basis to small scale, then medium scale and finally large scale. Industrialisation in thus defined as a process in which changes of a series strategic production function are taking place. It involves certain basic changes like mechanization of a production process, building up of a new enterprise, the expansion of existing markets and exploring new ones, and introduction of new products and production methods. These changes in the production function keep on taking place constantly. Industrialisation necessarily involves use of improved techniques of production. These

techniques are usually capital intensive in nature. This implies that capital-labour ratio keeps on rising. This is the process of capital deepening which is an essential feature of Industrialisation. When the improved techniques are introduced in more firms and enterprises it involves capital widening. Industrialisation can thus be viewed as the process of capital deepening and capital widening. Such a process helps in improving productivity and increasing aggregate industrial output. Thus, Industrialisation has profound economic consequences in that it results in over-all economic growth. At the same time, it has far-reaching social consequences also, such as class conflict between labour and capital, increasing rural-urban migration and break-up joint families, etc.

It is clear that when the process of economic development started in the underdeveloped countries, the demand for industrialisation also grew. It was seen as the means to economic development at an accelerated pace. Industrialisation in these countries has been identified with higher marginal productivity of labour, technological improvement, rising level of skills and inventiveness. It is thus considered as the necessary means of raising the levels of living of the people.

This brings us to the question of industrialisation versus agricultural development. The question was raised frequently in the early stages of planned development of the developing countries. While the foregoing arguments were advanced by some in favour of industrialisation, other emphasized that the comparative advantage of these countries lay in concentrating on agricultural development. The latter argued that since major proportion of the working force of these countries was employed in agriculture, the raising of the productivity of such labour as well as the general standard of living of the rural folk logically required the planners and policy makers to allocate resources primarily to agricultural development. They considered industrialisation of these countries to be pre-mature, to ambitious and costly. However, development of these countries through mere planned agricultural growth is not possible for several reasons. Land resources vis-à-vis their expanding population are severely limited. Besides, because of too much concentration of labour on a single activity, the marginal productivity of workers is already very low. There is rampant disguised and under-employment in the sector. This has resulted in a structural disequilibrium in these countries, with additional employment of factors of production resulting in diminishing returns. Shifting of factors of production to the non-agricultural sectors would lead to a higher growth rate due to a more efficient (i.e. more productive) use of these resources.

As we shall observe subsequently in this lesson, industrialisation can be rationally expected to bestow several benefits on the developing world. This includes creation of new employment opportunities, broad educative benefits like learning of new skills and engendering of a scientific temper among the traditional populace, introduction of new methods of production and products, benefits percolating to other sevtors through linkages between manufacturing activity on the one hand, and agriculture and services on the other hand, and so on and so forth.

There is indeed a complementary relationship between agriculture and industry. The symbolic relationship between two emerges in several forms. Agriculture supplies labour, capital, raw materials and even markets for the industrial sector. On the other hand, industry supplies inputs like fertilizers, insecticides and machinery to agriculture. The agro-based

industries bring out this mutually beneficial relationship between the two admirably. Due to the interdependence of agriculture and industry, the two must grow side by side in a balanced manner.

Industrialisation in the developing countries depends upon several inputs in the form of basic infrastructure and appropriate govt. policies. The former include facilities like transportation, communication, power, banking, insurance and an educational set-up which supplies necessary skills to the industrial sector. The absence or inadequacy of these facilities would constrain a smooth industrialisation process. The govt. policies, including fiscal incentives, and a regulatory framework for the money, capital, labour and other related markets also help in the industrialisation process. Finally, entrepreneurship is a necessary co-operant factor for facilitating industrial development. A robust class of people ready to bear the necessary risks and uncertainities of new and expanding industrial enterprises is a *sine qua non* for industrialisation.

In order to initiate and to accelerate the process of industrialisation in developing countries, the state has played an active role through direct public investment in industrial enterprises. Public sector enterprises have been set up since private sector was found to the absent, reluctant or rather weak in these countries. Thus, the basic ground work for industrialisation was done by public sector enterprises to start with. However, with passage of time, private sector has been giving a freer role in setting up industries either because state resources were found to be inadequate to expand the industrial sector further, or public sector inefficiencies started cropping up, or pressure exerted by international financial institutions and foreign governments in favour of privatization proved to be too strong to resist. Still, the role of public sector enterprises in initiating the process of industrialisation in developing economies cannot be underestimated.

Economic development, to a large extent, depends on industrial development. One is in fact the concomitant of the other. Industrialisation helps in raising income levels through productivity improvements technical change, skill formation and by breaking the shackles of conservatism, lethargy and inertia. As incomes rise, demand is generated for industrial products which have a high income elasticity of demand. The two processes of economic development and industrialisation thus reinforce each other. Some of the developing countries, however, stressed industrialisation for economic development a little too muchand at the cost of neglect of agricultural development. As noted earlier, agriculture and industry have a complementary role to play. They are interdependent activities. They not only support inputs to each other, but they also generate a market for each other products. Those countries which attempt to industrialise but neglect their agriculture come up against a demand or supply constraint. Lagging agriculture acts as a drag on its industrial development. Therefore, industrial sector may play the role of a leading sector in economic development, yet the complementarity of the agricultural sector cannot be ignored. In fact, the rate of industrialisation crucially depends on the extent to which the agricultural bottleneck is surmounted. Having overcome this bottleneck (in the form of shortage of foodgrains, raw materials and lack of farm demand for industrial goods) industrialisation can be pushed up so as to reap substantial *dynamic benefits* in the form of suitable structural changes in the economies of the developing countries. Industrialisation confers further benefits on these countries in the form of rising share of manufacturers in their exports, increased urbanization which necessarily accompanies industrial development.

2.   Learning Objectives

After going through this lesson, you will be able to:-

- Define the role of Industrialisation in Economic Development

- Understand rationale and objectives of Industrialisation

- Understand the process of Industrialisation

- Identify the strategies and policies for Industrialisation

3.   Process of Industrialisation

In the foregoing discussion, the words industrialisation *process* have been used repeatedly. Industrialisation is indeed a complex process. The word *process* needs to be properly understood. The dictionary meaning of process is "series of actions or changes". Thus, setting up of industrial firms here and there is just an outward manifestation of a whole series of actions and changes which indeed take place gradually and almost imperceptibly behind the scene. But without such changes taking place the mere establishment of a few industrial firms, say, through external aid, just as happened in the underdeveloped countries during the colonial period, does not ensure industrialisation because the *process* which is being stressed here may have in fact been absent in this situation. Any attempt to industrialise without the whole series of changes, which are a condition precedent to industrialisation, will merely result in a wastage of effort or a grafting exercise which will not help the firms so set up to take firm roots in the economic system of the country. It may at best create, what is called enclave or dualistic economy.

The Industrialisation process, or the series of changes, which are being highlighted here consist of a change in the attitudes of people in general from that of fatalism to a scientific one, the emergence of an educated and skilled class, the development of labour and capital markets, rise in the saving propensity and inducement to invest, emergence of a nascent entrepreneurial class, development of infrastructural facilities like banking, transportation, communications, power generations, etc. and the expansion of the old and or exploration of new markets. Of course, in the process of industrialisation, as indeed in any such process in the socio-economic structure, it is difficult to say what is a cause and what effect. Most of the foregoing changes occur in response to industrialisation itself. But some of these changes must precede the setting up of industries initially, even though the changes are of a very rudimentary form. This process, with the passage of time, will snowball into a vigorous movement forward of several mutually interlinked changes.

Industrialisation should, therefore, be viewed, not just establishment of industrial firms here and there, but as a part of several allied changes taking place simultaneously, as a consequence of which the share of a manufacturing sector in the GDP and that of industrial employment in the total labour force keeps on rising.

4.   Rationale and Objectives of Industrialisation

The foregoing discussion on the role of industrialisation in economic development makes it clear that there is a definite *rationale* for industrialisation of the developing countries. the following specific points bring it out in unambiguous terms:-

(i)   Before the process of industrialisation started in the developing countries, there existed a *structural disequilibrium*, which to an extent has not been removed even now. These countries were characterised by a severe economic imbalance in the sense that primary activities in general and agriculture in particular accounted for a disproportionately large share in GDP and total employment. Consequently, labour productivity in the primary sector was very low (sometimes in the neighbourhood of zero) while in the relatively undeveloped secondary and tertiary sectors, it was quite high. It is quite clear that if labour and capital was shifted from low productivity primary sector to the high productivity secondary and tertiary sectors, the economic structure would become more balanced, and in the process the same factor inputs would generate a larger flow of goods and services (i.e. increase the GDP). Thus, Industrialisation can be seen as a step towards rectification of the structural disequilibrium in these economies.

(ii)   At the start of their development process the developing countries had very little additional employment opportunities because agriculture and allied primary activities had already reached a saturation point in this respect. Besides, the skill level of the work force remained very poor. Technologically too, these countries were very backward. Industrialisation had opened up *new employment* opportunities and made the occupational structure more diversified. Through linkages, industrialisation and also created employment opportunities in the complementary services sector. Besides, industrial development invariably raises the *skill level* of the work force. The workers employed in industries and services tend to absorb imported and locally adapted techniques of production. All this provides enough rationale and justification for industrialisation of the developing countries.

(iii) A further rationale behind the industrialisation process appears in the form of *external economies and dynamic benefits* of such a process. These benefits accrue to an erstwhile underdeveloped and stagnant economy in diverse forms. Some of these are: The benefits of economies of scale, efficiency in resource allocation (i.e. transfer of resources from low to high productivity occupations), promotion of a scientific temper and research and development (R&D) activity, benefits of specialization (firms and factor units concentrating on single and specific outputs and activities), improvement in the horizons of knowledge through learning new techniques and skills, products, markets, etc. and so on and so forth. The accrual of these dynamic benefits and external economies provides a strong argument in favour of industrialisation.

(iv)   Traditionally the underdeveloped economies had been the exporters of primary products. About such a pattern of trade of these countries, the Prebisch – Singer – Mydial thesis had contended that it had harmed the countries over a very long period, since their terms of trade vis-à-vis the developed countries has deteriorated. In support of the thesis, it has been argued that the income elasticity of demand for primary products is low. In other words, as international incomes rise, the demand for primary exports rises less than proportionately,

unlike the exports of the developed countries, for which income elasticity of demand is greater than unity. One of the factors contributing to the relatively inelastic demand for the primary exports is the substitution of synthetic raw materials for natural raw materials like jute, cotton, rubber, etc. in the developed countries. There has been, therefore, an urge in developing countries for shifting to the exports of manufactured goods. Industrialisation naturally helps these countries to discover their comparative advantage in the production of manufactured goods for exports.

(v)   Finally, economic development, even if not accompanied by industrialisation on a wide scale, creates favourable conditions for the latter. As the development process gets underway, the pattern of demand changes. With increases in per capita income ,an increasing proportional of the additional incomes gets spent on manufactured goods and services and a declining proportion n agricultural products. This is in line with the empirically supported and celebrated Engles. Law of consumption. Thus, with economic development the market for industrial products keeps on expanding, which provides a strong rationale for emphasis on industrialisation. Sometimes, this argument for industrialisation has been countered by western economists, arguing that the rising demand for industrial goods can be easily met through imports from developed countries where these are available at lower costs due to the economies of scale. However, this contention of some of the western economist overlooks the dynamic benefits of industrialisation (already discussed earlier in this lesson) which would accrue to the developing countries.

The foregoing points very cogently bring out the rationale for the process of industrialisation. From these also follow the *objectives* of that process. It is thus clear that the objectives of industrialisation in the developing countries are the following:-

(i)   To correct the structural imbalance by allocating more resources to the development of non-farm activities like manufacturing.

(ii)   To set into motion a process of employment generation outside agriculture, skill formation and technological change.

(iii)   To enable the developing economies to reap the dynamic benefits and external economies from the process of industrialisation.

(iv)   To bring the production structure in line with the pattern of demand for exports as well as the indigenous consumption pattern, as it emerges in a developing world.

5.   Strategies and Policies for Industrialisation

As the process of economic development got underway in the underdeveloped economies in the post-Second World War period, a variety of policies and strategies were adopted to integrate the process of industrialisation into the general framework of economic planning and state intervention. Some of these policies and strategies were somewhat

innovative in nature, since the earlier industrial revolutions in different countries (except in the erstwhile Soviet Union) had taken place in a comparatively free enterprise milieu. Governments had certainly promoted indigenous industry, but the emphasis was primarily on fiscal and trade policies to attain that objective. The policies and strategies adopted for industrialisation in the developing countries have been more direct and strongly interventionist in nature. This would be clear from the discussion of the policies and strategies adopted in this respect, which follow:-

(i) **Planning for Accelerated Industrialisation:-** During the last half a century the people and their leaders in the developing countries have been fired by the ambition to industrialise at a rapid pace. To achieve this objective, they gave up the laissez faire model of development and instead adopted the path of economic planning and state intervention. The broad policy framework has consisted of so influencing the pattern of resource allocation and investment pattern that industrial development takes place at an accelerated pace. For this purpose, most developing economies planned industrial development within a mixed economy framework. The public and private sectors have been assigned specific role for industrial development. The national plans laid down investment and output targets for both the sectors. The governments of these countries assumed regulatory powers over the private sector industries so that the latter could be made to fulfill production and investment targets laid down in the plans. Besides, fiscal and monetary policies as well as price and physical controls were adopted with the objective of accelerating the face of industrialisation. State intervention for industrial growth also aimed at influencing the composition of production in such a way that the socially most desirable basket of goods and services is produced.

(ii) **Direct Investment in the Public Sector:-** Under the foregoing broad strategy, a policy of nationalisation of some private industries, starting some new ones within the public sector, and reservation of several strategic industries for that sector, has been pursued in developing countries with varying degrees of emphasis. In countries like India, direct public investment in industries has taken place in basic and capital goods industries. The inspiration for such a strategy initially came from the erstwhile U.S.S.R. where, under their five year plans around the 1930s heavy industry was developed with the marked degree of success. This strategy and model was adopted by several underdeveloped countries in initial stages of their planning. Later besides the development of basic and key industries, the public sector entered into several other non-core and even consumers good industries. In India, public sector started producing goods like cars and bread. Such indiscriminate direct public investment in industries has resulted in high cost and inefficient output everywhere many of the public sector enterprises have fallen sick and become a liability on the public exchequer. Of late, this has led to the retreat of the public sector from investment in industries and currently there is a wave of de-nationalisation and 23racticed2323on in the entire group of developing countries.

(iii) **Privatisation of Role of MNCs:-** It is clear from the preceding paragraph that the public sector investment in industries started with the bang but seems to be ending with the whimper in developing economies. The strategy has come up against different problems. These problems related to difficulties created by mismanagement, lack of budgetary resources, political interference and consequent inefficiencies of public sector enterprises. This has prompted the public sector to retreat from the industrial sector and to disinvest in the

public sector enterprises. There has been a wave of 24racticed2424on all over the world. According to World Bank's *Privatisation International Year book* (1993), more than 50,000 state-owned enterprises had been privatized in different countries since 1990. Current strategy for industrialisation in developing countries is, therefore, to create a facilitating environment for the private sector industries to grow, and at the same time, to permit the multinational corporations to start industrial ventures in these countries either as their wholly owned subsidiaries or as joint ventures with indigenous entrepreneurs. Thus, the honeymoon of developing countries with public sector enterprises is nearly over; there is indeed a swing in the opposite direction, with emphasis on deregulation, privatization and foreign direct investment.

(iv) Import-substitution and Export-led Strategies:- The industrialisation process in underdeveloped economies of the 1950s and 1960s started with an import-substitution strategy under which many imports were substituted with domestic production, usually within the public sector. However, the potential for import-substitution got exhausted soon and later, many developing economies had to turn to the alternative strategy of export-led industrialisation. These two strategies shall be discussed more fully later in Lesson 4.

(v) Balanced versus Unbalanced Growth Strategies:- In the context of over-all Growth of underdeveloped economies of the immediate post-Second World War period, these two alternative strategies had been advanced. Though the strategies were advocated in a wider developmental context, yet these could also be viewed in the narrower perspective of industrial development especially the initiation and subsequent sustenance of the industrialisation process.

The main proponents of the *Balance Growth (B-G) Strategy* were P.N. Rosenstein – Rodan, Ragnar Nurkse and W.A. Lewis. This strategy or approach was based on the assumption that in backward and stagnant economies market for the product of any one industry is limited because of the rampant poverty. This indeed was the case when the currently developing economies were underdeveloped in the 1940s and 1950s. Due to the lack of sufficient demand or market, even if alone industry is started, it will not be able to sell its output. The B-G strategy, therefore, advocated investments being made simultaneously in a wide range of industries. This would help in overcoming the demand constraint since several investment made simultaneously will generate enough stream of incomes and consequent demands for the products of the industries which are thus launched. Each enterprise create demand for the product and the other enterprise.

Rosenstein – Rodan had in fact advocated the B-G Strategy in the context of industrialisation of the Eastern and South Eastern Europe. He had in mind the simultaneous development of light consumers goods industries. Subsequently, Ragnar Nurkse and others extended the approach to a broader question of balanced development of industries, agriculture and social over-head capital.

The B-G Strategy was, however, criticised among others by A.O. Hirschman. He argued that for implementing this strategy demands would be created for precisely those abilities (e.g. entrepreneurship) which are in short supply in an underdeveloped economy. Hirschman succinctly summed up the criticism thus: "if a country were ready to apply the doctrine of balanced growth, then it would not be underdeveloped in the first place".

Hirschman advocated the alternative strategy or approach, called the *Unbalanced Growth (U-G) Theory.* This approach is based on the assumption that the underdeveloped economies lack resources especially capital entrepreneurship and skills. The growth process has, therefore, to economise their use. In the context of the general development process, only a few leading sectors may be chosen for heavy investment. This should be done the view to deliberately unbalance the economy. Making investment only in the few sectors will create shortages and surpluses. The U-G Strategy aims precisely at that. So the advice is: "maintain tensions, disproportions and disequilibrium", because these will induce changes in the interlinked sector so as to promote equilibrium, but in the process will generate fresh disequilibria and thus a chain sequence of moving from one disequilibrium situation to another disequilibrium situation will be created. This will lead to rapid economic growth.

In the precise context of industrialisation, the U-G Strategy makes use of the concept of backward and forward linkages. To illustrate the operation of these linkages, take the case of steel production. A steel industry has backward linkage with iron ore and coal mining (since for steel production, prior supply of iron ore and coal is necessary), and it has forward linkages with engineering industries sine the latter would use steel as input for their output.

For the underdeveloped economies of the 1950s Hirschman recommended the establishment of those industries "that transform imported semi-manufacturers into goods needed by final demands". These imported semi-manufacturers merely require final touches to be given to them. So these countries should set up (in the given circumstances in the of the 1950s) the "last" industries first. Hirschman called these "enclave import industries". The benefit of setting up these industries would be that they would create backward linkage affects with an infinite range of input and intermediate goods supplying industries. The former would induce investments in the latter. Hirschman argued that these countries should not restrict imports to severely since these have "awakening and inducing effect" on industrialisation. Import substitution should not be practised by these countries too early because they would then lose the advantages of backward linkage effects of "enclave import industries". Import demand should in fact be focused on those goods whose domestic production is to be fostered. Once industries producing them have come into existence, these infants may be protected against foreign competition.

In actual practice the developing countries have adopted neither the B-G Strategy nor the U-G Strategy in it's true spirit. The former needed meticulous planning to strike a proper balance among different industries and sectors of the economy. And this would require resources far beyond their capacity in initial stages of development. The U-G Strategy appeared on the face of it a little too uncertain to achieve the desired results. One may set up a strategic industry with supposedly strong backward and forward linkages. But where is the guarantee that the entrepreneurs will pick up the market signals and immediately as soon as these become manifest. The tendency of most developing countries to adopt import-substitution to soon and on a rather wide scale also precluded the adoption of the U-G Strategy.

Exercise

1.   Define Industrialisation.

2.   What is the role of Industrialisation in economic development of an economy?

6.   Summary

This lesson highlighted that economic development to a large extent depends upon industrial development. As we discussed, industrialisation involves certain basic changes like mechanization of a production process, building up of a new enterprise, the expansion of existing markets and exploring the new ones, and the introduction of new products and methods. The rapid industrialisation helps in raising the level of income through productivity improvements, technical change, skill formation and by breaking the shackles of conservatism, lethargy and inertia. The rationale and objectives of industrialisation are to correct the structural imbalance, to generate employment opportunities, skill formation and technical change and to bring the production structure in line with the pattern of market demand. However, during the process of industrialisation, several policies and strategies were adopted like direct investment, privatization, import substitution and export-led strategies and balanced and unbalanced growth strategies. Therefore, industrialisation plays an important role as a leading sector in economic development of an economy.

7.   Glossary

- **Balanced Growth:** Balanced growth refers to this simultaneous coordinated expansion of several sectors.

- **Economic Development:** Economic development refers to the process by which overall health, well-being and academic level of the general population of a nation improves. It also refers to the improved production volume due to the advancement of technology.

- **Industrialisation:** Industrialisation is defined as a process in which changes of a series of strategic production functions are taking places like mechanization of production process, building up of a new enterprise, the expansion of existing markets and exploring new ones and introduction of new products and production methods.

- **Import Substitution:** Import Substitution refers to a trade and economic policy that advocates replacing foreign imports with domestic production.

- **Marginal Productivity:** Marginal Productivity or Marginal product refers to the extra output, return or profit yielded per unit by advantage from production inputs.

- **Structural Disequilibrium:** Structural Disequilibrium emerges on account of structural changes occurring in some sectors of the economy at home or abroad which may alter the demand or supply relations of exports or imports of both. This type of disequilibrium often results from changes in technology, government policy or the economy

- **Technical Change:** Technical Change is an increase in the efficiency of a product or process that results in an increase in output without an increase in input.

- **Unbalanced Growth:** Unbalanced Growth hypothesis's stresses on the need of investment in strategic sectors of the economy instead of all sectors simultaneously.

8. Answers to Self Check Exercise

Answer to Q1. Refer to Section 1.

Answer to Q2. Refer to Section 1 and 4.

9. References/Suggested Readings

- Bryce, M.D. (1960). Industrial Development: A Guide for Accelerating Economic Growth. McGraw-Hill, New York.

- Thakur, S.Y. (1985). Industrialisation and Economic Development. Popular Prakashan, Bombay.

- Meier, G.M. (1990). Leading Issues in Economic Development.

10. Terminal Questions

Q1.   What do you mean by Industrialisation? What is the role of industrialisation in economic development?

Q2.   What are the objectives of industrialisation? Discuss strategies and policies for industrialisation.

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EMPLOYMENT IMPLICATIONS OF INDUSTRIALISATION

STRUCTURE

1. Introduction

2. Learning Objectives

3. Labour-intensive vs Capital-intensive Technology

4. Appropriate Industrial Technology for Developing Economies

5. Summary

6. Glossary

7. Answers to Self Check Exercises

8. References/Suggested Readings

9. Terminal Questions

1. Introduction

The question of industrialisation of the developing world and its interlinkage with overall development, which was the subject matter of the preceding lesson, throws up several issues, perhaps the most important among them are: how and how much can industrialisation be relied upon solve the unemployment problem of the developing countries and which technologies can be considered to be in their best interest? These two associated issues are the theme of the present lesson.

It is commonplace to say that the underdeveloped countries, before their development process started, had a highly unbalanced employment structure, with a disproportionality large percentage of the labour force being dependent on primary activities in general and agriculture in particular. You would recall from your knowledge of microeconomics that when more and more of the variable factor is employed in an activity, its marginal and average productivity keeps on declining and it could also become zero ultimately. The developing economies have traditionally been thought of having experienced some such thing in their agricultural sector. Too match labour has got concentrated in that sector, with the result that marginal productivity of labour declined to zero. Thus, emerged the phenomenon of disguised unemployment there. On the other hand, if the labour suffering from disguised unemployment were shifted to non-agricultural activities, ads marginal productivity would be much higher. This is a case of structural disequilibrium in these economies. For the removal of the structural disequilibrium and disguised unemployment industrialisation has been considered to be sin qua non.

Looked at from a different angle, industrial development is viewed as means of diversification of the employment or occupational structure. Agriculture in the developing countries has been long characterised by existence of surplus labour and absence of employment opportunities. Industrialisation has been considered to be a means of solving the problems of open and disguised unemployment.

Thus employment of the unemployed or partially employed appeared to be a sound reason for advocating industrialisation of the developing economies subject to certain conditions. According to Murray D. Bryce, there are two conditions which are necessary for justifying industrialisation of these countries from employment angle, viz. that (i) the productivity of labour employed in new industries is higher than that in the primary sector, and (ii) the industrial projects in which such labour is employed are sound enough to make a net contribution to the GDP of the country. It would be noted that under this criterion, industrialisation contributes both to employment generation as well as output growth.

Industrialisation as a means of employment creation was not an idle dream of the policymakers in the developing countries. In fact there was massive evidence available from the experience of the already developed countries that with the process of development labour shifts take place on a large scale from the primary sector to the secondary and tertiary sectors. Studies of Simon Kuznets, for example, show that in Great Britain between 1801 and 1991, the share of labour in agriculture declined from 35% to 5% while that of industry rose from 29% to 57%. Similarly, in the U.S.A. between 1840 and 1950, the share of agriculture declined from 68% to 12% while that of industry increased from 30% to 45%. And this has invariably happened during their long process of development in all the developed countries. (For more details, see Simon Kuznets, Modern Economic Growth, chap. 3).

It was such evidence that encouraged the planners of underdeveloped countries in the 1950s and the 1960s to plan industrialisation on a large scale. It had become pretty obvious that so far as employment generation was concerned. The primary sector of these countries had very little scope left because already the man-land ratio had reached a high insustainable level. They had to look for additional employment opportunities outside agriculture. So industrialisation was the obvious choice for them. However, during this period of planning, the planners of underdeveloped countries came in for sharp criticism from many economists of developed countries. The latter Contended that the structural shifts of labour away from agriculture as indicated above, were the result of long period of economic development. According to them these planners were putting the cart before the horse by pushing up industrialisation (and creating employment outside agriculture) so that it could cause faster economic development. They wanted these countries to plan more and more investments in agriculture (in which alone they developing countries were supposed to have a comparative advantage) so that employment would be generated there itself. However, by reversing the process of economic logic, the planners of developing countries tend to show that in the developed countries economic development had taken place under broadly laissez-faire conditions, but the former were trying to actively promote industrialisation and economic development. The planners of developing countries tried to hasten the process of economic development and structural change through active policy while in the developed countries it was a slow and largely automatic process propelled by economic forces. In promoting industrialisation as a means of employment generation and economic development through policy measures the planners were trying to achieve quick results.

Industrialisation not only promotes employment generation directly through more people being engaged in the processing of goods in *industrial enterprises*, but also indirectly through more employment opportunities being created in the complementary tertiary sector. There are inter-sectoral linkages between secondary and tertiary activities. More factories require more banking, transportation, communication and such other services. Thus, industrialisation promotes a shift of labour from agriculture to the broad group of non-agricultural activities.

During the five decades of industrialisation in the developing countries since the early 1950s, the actual experience of employment generation in the industrial sectors of these countries has been rather mixed. In some countries, the shift of labour from agriculture to industry has been quite impressive, while in others it has belied the hopes of their hopes of their policy makers. Between 1965 to 1991, the proportion of labour force employed in industry rose from 13 to 36 percent in Republic of Korea and from 12 to 21 percent in Handuras, but in Pakistan and Venezuela the rise was a mere 20% from 19% and 25% from 24% respectively.

The structural shifts in employment of labour referred to above have occurred rapidly in some countries which were able to record high rate of GDP growth. Such countries have graduated from the class of low income to middle income in a period of three to four decades. Others experienced a slow growth rate and they still continue to be counted among the low income countries. The former group of countries has now a more balanced employment structure and it is in this case that industrialisation has contributed impressively to non-agricultural employment.

In the matter of employment generation through industrialisation, there has been a qualitative difference between the experience of the new developing countries and the already industrialised developed economies at their comparable stages of development. When the latter category of countries were at the same stage of development where the developing economies are today, they were using labour-intensive technologies and their factories. This advantage is not available to the currently developing economies. They have to use relatively capital-intensive technologies to remain competitive in a world which is getting more and more globalized. Therefore, the developing economies are finding it hard to increase employment through industrialisation.

There is another angle to the link between industrialisation and employment generation in the developing economies. The composition of the industrial sector of these countries in terms of (i) scale of production, and (ii) the integration of the production units with the organized segment of the economy, are important for employment generation. So far as scale of production goes, the large scale industries, per unit of capital invested or per unit of output generate less employment. On the other hand, the small scale industries make much greater contribution to employment creation. Large scale industries are now adopting more and more capital-intensive technologies. Automation is now displacing labour in them. Even the skill level of workers in large scale industries has to be much higher. It is, what are called knowledge workers, who are finding more employment in such industries. Therefore, the low skill manual labour has to find employment mainly in small scale industries.

The organised-unorganised dichotomy in industrial sectors of these economies is also important for employment growth. The industrial sector in the developing economies is highly segmented in terms of location of production, technology used, output produced and nature of marketing. The organised segment of industry comprises of factories, producing non-traditional goods, using relatively capital-intensive technology and being highly integrated with national and international markets for products. Compared to the overall capital invested in this segment includes numerous tiny-sized production units, scattered all over a country, especially in slum areas, small towns and villages , located within the households of the artisans, using manual production operations or at best obsolete tools, implements and machinery, and marketing products in the local market. Since the unorganised segment of industry uses, by and large, labour-intensive methods or of production, it creates much more employment than the organised segment. In the developing economies, as the process of development accelerates, the rural-to-urban migration also gathers momentum. However, most of the migrants fail back upon the informal or unorganized sector for unemployment. The factors operating on the demand and supply sides help in the generation of part or whole-time employment.

The importance of the unorganized segment in employment generation in developing economies can be gauged from the position in this respect in India, which may be taken as a typical case of these economies. In Indian economy as a whole, unorganised sector accounts for about 90 percent of total employment. Even in manufacturing, the share of unorganized industry in total industrial employment was estimated to be as high as 76 percent in late 1980s.

If this is a situation representative of that obtaining in the whole of the developing world, it is clear that from the point of view of employment generation, any policy emphasis on the development of modern large-scale industries is a futile exercise, since compared to the capital invested there, very little additional employment gets generated. Ironically, it is the unorganised manufacturing, which gets very little institutional support from the government agencies and financial institutions, that is the main employment generating segment of industry. Besides, the organised segment of industry is now increasingly employing relatively more skilled labour. Labour which is unskilled, semi-skilled or possessing traditional skills has to primarily seek employment in the unorganised segment of industry.

It is on account of the foregoing that the hopes raised in the 1950s and 1960s to use the strategy of industrialisation for employment generation outside agriculture have, by and large, been dashed to the ground. The large-scale factory system in developing economies has helped in employing only a small fraction of their total labour force. Large scale manufacturing enterprises in these countries have increasingly employed imported capital-intensive technology and used other productivity raising methods. As a result, the employment elasticity of output or the ratio of employment to output (i.e. increase in employment per unit of output growth) declined overtime. Thus, the employment potential of the organised-segment of industry has grown very slowly, leaving a major chunk of idle labour outside agriculture to seek gainful work in the unorganised segment. However, employment in the latter segment is usually temporary or of casual nature and carries low rates of remuneration. Working conditions of workers in this segment too are usually very poor.

2. Learning Objectives

After going through this lesson, you will be able to:-

- Understand employment implications of Industrialisation

- Study appropriate industrial technology for developing economies

3. Labour-intensive vs Capital-intensive Technology

The developing economies are faced with the problem of choosing between labour-intensive and capital-intensive technologies. The former eminently suit in the context of labour surplus and employment generation. The latter, however, promote labour productivity and international competitiveness. Therefore, both types of technologies have their respective merits and drawbacks. In the present section of this Lesson, we shall discuss these merits and demerits of the two types of technologies for the developing economies. Take first of all the labour-intensive technology. Such technology is most useful from the employment angle. Per unit of scarce capital use such technologies employ more labour. These also tend to minimise the problems which are usually associated with capitalistic, gigantic enterprises of the West, viz. concentration of economic power, monopolistic and oligopolistic exploitation of labour and consumers, strained industrial relations, poor living and social conditions in the large industrial towns, etc. Labour-intensive techniques are associated with small scale production which does not create such problems. In so far as unemployment and poverty are related phenomena, labour-intensive techniques can also be used as means of poverty eradication. Labour-intensive techniques not only economise the use of scarce capital but also minimise the need for highly skilled man-power, imported inputs like machinery, components and raw material and usually imported fossil fuels. This also reduces the risk of running into balance of payments difficulties which normally afflict these economies. A process of development based on labour-intensive techniques Is also better Integrated with the domestic economy because most of the inputs needed for production are indigenously supplied and output produced is also mostly used locally. Such techniques are, therefore, more investments consonance with the concept of economic self-reliance and the spirit of *Swadeshi*.

However, all this is fine so far as it goes. But it does not seem to go far enough in the modern dynamic globalised world. The use if capital-intensive technology cannot be forsworn on ideological or sentimental considerations. Even the neo-classical logic of using the relatively abundant factor (i.e. labour) more in production, simply because it happens to be relatively cheaper as well cannot be allowed completely to overshadow the other considerations in technological choice in developing economies. These other considerations are: to bring about technological revolution to upgrade labour skills, to compete efficiently in the international market, to enjoy economies of large scale and so on and so forth. Besides, in technological choice a matter usually overlooked is that for the production of certain goods (especially the modern goods such as the computers or aeroplanes) there is hardly any technological choice available. Either a country produces such goods with the only available capital-intensive technique or it does not produce the goods at all. In the latter case, the country not only remains technologically backward but also remains dependent on imports of such products for ever or till sufficient capital would be available sometime far into the future.

Thus, capital-intensive technology has its own merits for developing economies, like experiencing a technological revolution, upgradation of skills, production of new goods, attainment of economic efficiency in production (i.e. increase in productivity, reduction of costs and improvement of quality), gaining competitive advantage in the domestic market and abroad, accelerating the rate of capital formation, etc.

It would thus be seen that there are weighty arguments for the use of labour as well as capital-intensive methods of production in these economies. But there is also a dilemma or a trade-off involved in technological choice. There is a trade-off between employment generation and technological revolution. It either labour-intensive or capital-intensive techniques are chosen, the trade-off does not get resolved. One method of resolution of the trade-off is that where no technological choices available, i.e. only a capital-intensive technique is known and available for production of good, or where good has to compete in the international market or where a labour-intensive technique is highly inefficient, only capital-intensive technique should be adopted. In all other cases, relatively labour-intensive techniques should be adopted with a view to generate sufficient volume of employment. If such a technological mix is adopted, the country would be able to enjoy the twin benefits of employment generation and technological revolution simultaneously. Another method suggested to resolve the trade-off mentioned above is through the development of appropriate technologies for these economies. We discuss this possibility in the following section.

4. Appropriate Industrial Technology for Developing Economies:

The question of the most appropriate technology for developing economies has received attention during the last four decades because neither the primitive labour intensive techniques nor the highly capital intensive ones are for them. In this connection, several seemingly synonymous concepts have come into use, although their meanings somewhat differ from each other. *Appropriate technology* refers to those methods of production which are in harmony with the factor endowments of the developing world. *Immediate technology* refers to those technological processes which lie half-way between highly capital-intensive methods in use for centuries in the underdeveloped world. *Alternative technology* refers to those production methods which use the minimum for non-renewable resources (like fossil fuels), do not interfere with the environment, promote local self-sufficiency and do not exploit or alienate the individuals.

The most appropriate technology for developing country is what is termed the intermediate technology. In fact, a country should draw up the list of the whole range of technologies that are available to it. And this spectrum of technology is there would be some which would be highly capital-intensive at one end while others would be highly labour-intensive at other end. Add these two extremes, there may not be alternatives available and there is no technological choice involved. However, in the middle range, both labour and capital-intensive technologies, as alternatives, may be available. Hence, in this case there is a real choice problem involved. Deep point is that in those cases where either only a highly capital-intensive technology, or only a highly labour-intensive technology is known and available, there is no choice involved and, therefore, these technologies will have to be adopted. But there may be numerous products, for the production of which alternative

technologies are available. Take for instance, textiles (cotton, woollen or silken) which can be woven on handlooms, power looms or automatic looms. Thus, a range of technology is wearing between highly labour-intensive technology and highly capital-intensive are known and available. There may also be the intermediate technology available. The intermediate technology is in fact the appropriate technology for a developing economy, because it combines in itself the merits of both labour and capital-intensive technologies. It avoids the drawbacks of the extremes.

E.F. Schumacher was the leading protagonist of the intermediate technology. In his famous book Small is Beautiful, he refers to the indigenous technology which was available in the underdeveloped economies when these had not started developing. He symbolically refers to these as L-1 technology. On the other hand, the technology developed by the industrialised economies may be referred to as L-1000 technology. Schumacher calls intermediate technology to be, say, L-100 technology. It would be neither to obsolete, just as the L-1 technology, nor it would be highly capital-intensive like the L-1000 technology of the developed countries. The intermediate L-100 technology would be immensely more productive than the L-1 technology. Besides, the former would be far more cheap compared to the sophisticated, capital-intensive L-1000 technology which would have to be imported by the developing economies. Intermediate technology, according to Schumacher is neither capital-intensive nor labour-intensive.

According to U.N. study (*Processes and Problems of Industrialisation in Underdeveloped Countries*), the criteria of appropriate technology are: (i) the simplest of alternative techniques available (ii) the studies of the capital equipment available, and (iii) the smallest type of plant consistent with technical efficiency. To these criteria are added the following by Meier and Balawin: (i) techniques that require less time Techniques that require less time to learn, (ii) techniques that reduce the gestation period of investment, and (iii) Techniques that save raw materials or other scarce resources

According to Schumacher, intermediate technology is neither capital-intensive nor labour-intensive.

There are, however, practical problems relating to the evolving and use of appropriate technology. Where are such techniques and how can these be developed?

Prof. D.R. Gadgil had outlined three possible approaches in this respect, which are as below:-

(i)   To start with existing techniques and traditional industry need to be suitably transformed in the light of the knowledge of the advanced techniques. This means gradual improvement of the existing technique.

(ii)   To adapt and adjust the most advanced techniques to suitably meet the requirements of intermediate technology. The adjustment would have to be in accordance with availability of labour, skills, fuel and power as well as the extent of the market.

(iii)   To direct research and development (R&D) effort for the establishment of intermediate technology. For this to happen, peculiar limiting factors of the economy would have to be defined for the benefit of the local scientists and technicians.

It may be of interest to mention here that some efforts were actually made to develop intermediate technology and E.F. Schumacher had set up in 1972 an Intermediary Technology Development Group in London. In our own country an Appropriate Technology Cell was created under the Ministry of Industrial Development in 1971.

It must be, however, mentioned that the pioneers in this field, like Schumacher, have advocated the concept of intermediate technology primarily in the context of rural development and poverty alleviation. In the industrial sector, which within the framework of a globalised, open economy, has to compete with the products produced with highly capital intensive and sophisticated technology in the domestic economy and broad the scope for intermediate technology may be somewhat limited. However, the search for appropriate technology in LDCs must continue. For that to happen, local R&D Effort must be directed that evolving methods of production which are in relative harmony with the domestic resource endowment. At the same time the input is technology should not be blindly used by the suitably adapted according to the local requirements.

Exercise

1.   Discuss the employment implications of industrialisation in a developing economy?

2.   What is the difference between labour and capital-intensive technology?

5.   Summary

In the present lesson, you first of all studied the employment implications of industrialisation. It was noted that although industrialisation was assumed to be a step towards solution of the unemployment problem of the developing economies, yet in reality the capital intensive technology imported from the west, coupled with the rapid growth of the domestic population left the vision of employment generation unfulfilled. There has also been a plea to evolve appropriate technology for these economies but at the practical level nothing much has happened in this direction.

6.   Glossary

- **Intermediate technology:** Intermediate technology refers to those technology processes which lie halfway between highly capital intensive methods evolved in the West and indigenous production method in use for centuries in the underdeveloped world.

- **Capital-intensive Technology:** Capital-intensive Technique refers to that technique in which larger amount of capital is comparatively used.

- **Labour-intensive Technology:** Labour intensive technique is that a technique which uses comparatively larger amount of labour than capital.

7.   Answers to Self-Check Exercise

Answer to Q1. Refer to Section 1.

Answer to Q2. Refer to Section 3.

8. References/Suggested Readings

- B, Bepin., (1974) Appropriate Technology for Balanced Regional Development, keynote and Background Papers.

- Schumacher, E.F. (1997). Small is Beautiful. Vintage Books, London.

- Bryce, M.D. (1960). Industrial Development: A Guide for Accelerating Economic Growth. McGraw-Hill, New York.

- Thakur, S.Y. (1985). Industrialisation and Economic Development. Popular Prakashan, Bombay.

9. Terminal Questions

Q1. What is the role of industrialisation in employment generation?

Q2. Discuss labour and technology. What is the appropriate technology for developing economies?

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LESSON-4

PATTERNS AND PHASES OF INDUSTRIAL GROWTH

STRUCTURE

1. Introduction

2. Learning Objectives

3. Phases of Industrial Growth

   3.1   First Historical Phase (1770-1820)

   3.2   The Second Historical Phase (1821-60)

   3.3   The Third Historical Phase (1861-90)

   3.4   The Fourth Historical Phase (1891 onwards)

4. Patterns of Industrialisation

5. Summary

6. Glossary

7. Answers to Self Check Exercises

8. References/Suggested Readings

9. Terminal Questions

1.   Introduction

The present lesson analyses the historical evolution of modern industry in different countries of the world since the first industrial revolution took place in Britain at the end of the 18th century. The process of industrialisation during this period has passed through some identifiable phases and patterns. These phases and patterns have been statistically analysed by W.G. Hoffmann in his book titled *The Growth of Industrial Economies* covering the period 1770 to the 1950s, and by the U.N.O in its publication *Patterns of Industrial Growth 1938-1958.*

Based on these and other studies we shall first of all discuss the phases of industrialisation and then examine the patterns of industrialisation as also the changes which have occurred in the industrial structure in the already industrialised economies.

2.   Learning Objectives

After going through this lesson, you will be able to:-

- Understand the phases of industrial growth

- Identify the patterns of Industrialisation

3. Phases of Industrial Growth

The first industrial revolution started in Britain sometime around the year 1770. This country already had an industrial system consisting of household industries and handicrafts. Imports and exports of the country were fairly well integrated with British domestic industry. Capital was also available from the profits of foreign trade. The industrial revolution in this country was sparked off by significant improvements being effected in the existing tools and implements which were subsequently to take the form of machines. Until 1825 most of the machines were largely made of wood. But scale of production within factorise had already increased.

With the modern factories system already evolving in Britain in the first quarter of the 19th century, the interesting question is: how did industrialisation spread to other countries.

W.G. Hoffmann divides the history of the spread of modern industry of different countries of the world into four phases each of these phases is discussed ahead.

3.1 First Historical Phase (1770-1820)

Although, as indicated above, Britain was the first country in the world to have initiated the industrial revolution in the last quarter of the 18th century, yet in this first historical phases of industrialisation (1770-1820), Switzerland and United States of America had also started experiencing modern industrial development.

In Britain, the main industries to lead the industrial revolution were the textiles especially the woollen textiles industry. The British cotton textile industry, the iron industry, and other textiles industry which were the first to be developed on modern factory lines anywhere in the world, had benefited from two developments at the beginning of the historical phase viz. the Legislative prohibition of the imports of superior Indian calicoes, and the lack of government and guild (society of merchants or tradesmen) control over this industry. The extent of development of cotton textile industry during this phase can be gauged from the facts that (i) the consumption of raw cotton in this industry rose by a little more than 2.5 times between 1801 and 1820, (ii) in the latter year there were 14,150 powerless used in this industry, and (iii) in 1816 the average number of workers employed in 43 Manchester textile factories was 300. The last point amply brings out the scale of production attained by these factories even at this early stage of industrialisation.

The steam power was increasingly being used in industry now. The process of iron smelting had been invented at the beginning of the 18th century and its widespread use later led to development of the iron industry, between 1796 and 1825, the output of pig-iron increased by as much as 5 times.

The output of the cotton textile industry and the iron industry had started forming quite a significant proportion of the exports of Britain by the end of the 18th century. Some of these exports had started adversely affecting the domestic industry of the importing countries, one

of which was Switzerland. Therefore, towards the end of the 18th century the import of mass produced British cotton textiles forced Switzerland to use British machinery for this purpose which was somehow procured from the latter country (inspired of a legal ban on the export of machinery, tools, models and drawings from that country). In 1814, Switzerland already had 700 British type spinning machines and about 1.5 lakh spindles.

Just like Switzerland and U.S.A. also soon followed Britain in the matter of industrialisation. The process had started before 1820. The two factors which had spurred this process in the U.S.A. were: the protection granted to domestic industry at the end of the 18th century and the beginning of the 19th century, and (as according to W.W. Jennings) the relative wage rates in that country being higher than in Europe, this stimulated the use and invention of machinery.

The main industries to develop along modern lines after 1810 were textiles, leather goods, machinery, and iron and iron manufacturers. Jennings quotes a source according to which even in early 19th century there was a cotton textile factory at Smithfield operating as many as 3000 spindles. And in 1820 about 13.7% of American labour was employed in industries (although not all of them were employed in modern factories).

3.2   The Second Historical Phase (1821-60)

During the Historical phase, the industrial revolution spread to some other European countries, such as Belgium, France, Germany, Sweden and Russia. The changes in industrial revolution in most of these countries were hastened by the competition of imported British goods with the domestic products. The former were being produced on larger scale with improved methods of production. Consequently, in the 1840s and 1850s protective tariffs were adopted by nearly all these countries which promoted their industrialisation. This had enabled most of these countries to withstand competition with British goods by the end of this phase.

Over the European continent the country to adopt the modern factory system after Switzerland, was Belgium. This country had the advantage of old established textile, coal mining and iron industries. Only they were availing the application of new methods and organization of production. Pig iron and cotton and woollen textile industries developed relatively faster during this phase. The output of pig-iron which was 62,000 tons in 1845, rose to 2,18,000 tons by 1860. In the middle of this phase (i.e. in 1846), the average number of workers employed in Belgian college cotton textile and woollen textile mills was 43 and 30 respectively, but there is a instance of mill (John Cockerill's works) in which the number of workers employed was as much as 2000.

It was not until the late 1840s that modern factory started appearing in Germany. Between 1840 and 1860 the pig-iron industry developed rapidly, with pig-iron output in the latter year being 5.29 lakh tons, which was greater than that of Belgian output of pig-iron. Between 1850 and 1870 the consumption of pig-iron per capita in Germany rose by nearly 2.7 times. By the end of this phase the German textile industry had also started developing on modern lines.

France made a rather hesitant start in industrialisation during this historical phase. The French pig-iron industry could not make much headway during the period. The cotton textile

industry had been modernised before 1860, but woollen and silk textile industries could follow the lead of cotton textiles only around 1860. In 1854, the average number of workers employed in textile factory was about 50. Leather goods, sugar and alcoholic liquors industries were also able to develop somewhat.

Russia and Sweden were the other European countries to have experienced industrial revolution during the phase. In the former country, British spinning machinery was introduced in the cotton textile industry in 1842. In the 1850s Russian cotton spinning industry had attained fourth rank in production within Europe. By 1860 Russia's pig-iron output had also risen to 2.9 lakh tons, but it was still less than that of even Germany and Belgium.

In Sweden, inspite of an already well developed handicrafts system, modern industry did not appear on the scene till the middle of the 19th century. Cotton spinning industry was followed by silk spinning and weaving in this respect. By 1860, the average number of workers per cotton factory had risen to 200. The other industries to develop were sugar, breweries and tobacco manufacturing. Besides, engineering industry, machinery for textile industry, railways and ships building had also considerably developed. Steam engines were even being exported from Sweden.

3.3   The Third Historical Phase (1861-90)

This period saw the emergence of Italy, Holland, Denmark, Canada and Japan on the industrial scene. Italy had long tradition of textile manufacturing, but modernisation of the industry took place only after 1860. In the middle of the 1880s, Italian silk-spinning factories had 21 lakh spindles, the average being about 1000 spindles per factory. Cotton industry, which had a relatively late start, had 9 lakh spindles and 42,000 powerlooms in late 1880s. At about this time, iron, engineering, leather and paper industries also started developing.

In Holland engineering industry emerged after 1870. Ship binding industry also started making a slow progress. In cotton spinning, although the factory system had just emerged during the second historical phase, yet only in the third phase did the industry make rapid progress. By 1870, the number of shindles used in the industry had risen to 2.04 lakhs. Sugar and cocoa industries had also started developing.

Denmark, on the other hand, started industrialising through development of dairy and meat products. The engineering industry provided machines for dairy industry. Other industries to develop were sugar distilleries, glass ware and porcelain manufacturing. The 720 steam engines which Denmark had in 1880 were to multiply about 4.5 times in the next two decades.

From the foregoing, it is clear that till 1860 modern industrial development had taken place outside Europe only in the U.S.A. But during the third historical phase, the first state of industrial revolution was experienced outside Europe by Canada and Japan also. The former country benefitted from British as well as American investment as also the imports of machinery. Canada also introduced protective tariffs in 1879. The industries to develop during this phase were food, clothing, beverages, sugar, etc.

Japan started its industrialisation process after 1868 mainly in textile industries. Till the end of the last century nearly all the textile machinery was imported from Britain. But the

development of textile industries was aided by such factors as the abolition of feudalism and the shift of erstwhile feudal lords and their workers to industry. In 1886-87, Japan had 5 lakhs spindles in its cotton textile industry, with the number of spindles per factory being 3000, which figure had risen to 10,000 six years later.

3.4   The Fourth Historical Phase (1891 onwards)

Towards the end of the, some of the countries mentioned above had fairly advanced in their industrialisation and these were producing large quantities of machine-made mass-produced cheap goods. The imports of such products stimulated factory-based industrialisation far and wide on the globe. Therefore, the distinguishing feature of industrialisation in this historical phase was the vast geographical area of the earth involved in this process. Countries so widely apart situated as India, China, South Africa, Brazil, Mexico, Chile, Argentina, Hungary, Australia and New Zealand experienced the first flush of modern industrial development. The period of start of the industrial revolution in these countries is between 1891 and 1914. Thus, before the start of the First World War factory based industrialisation had become a worldwide phenomenon. As in the countries having passed through the first stage of industrialisation during the first three historical phases, in most of the countries making a beginning in the fourth phase also the textile industry led their industrial revolution, though there were some exceptions as well.

In India, though factory-based production had started in the decade of 1850-60, yet real beginning was made during the 1890s. The cotton textile industry led in this respect. Next in importance were the jute industry, rice mills and paper mills. The iron industry started developing after about 1910.

Chinese industrialisation started after 1898. But the pace accelerated only after the First World War under stimulus provided by the govt. Chinese cotton industry developed with the help of Japanese and American capital, while flour-milling industry developed with the help of indigenous capital.

In South Africa, iron, steel and engineering started developing after the First World War, though even before the war, food processing industries, such as sugar-refining, brewing, etc. had come into existence.

In South America, the industrialisation process truly started at the beginning of this century. In Brazil, the start of the process dates from 1906 under stimulus from govt. policies. Again, it was the cotton industry which led this process. It was followed by wool and jute industries. Other industries to come under the influence of factory system were: sugar refining, flour-milling, paper, tobacco and leather. In Argentina and Chile industrialisation was led by food-processing industries, such as flour, meat, dairy products.

In Australia, modern industry dates from the 1890s when frozen-meat factories were set up in New Zealand. Australia industrialisation started in the early years of the present century. In New Zealand, besides frozen-meat industry, the dairy industry had also started developing at the beginning of the 20th century. Shortly before the First World War, iron and engineering industries had also started developing. In Australia, the protective policies adopted at the beginning of this century marked the acceleration of the process of

industrialisation. The main industries to led the process in that country were brewing, meat processing, dairy manufacturing, sugar refining and pig-iron industries. Just before the First World War started, some engineering industries, producing farm machinery and railway construction material had also begun to develop.

4.   Patterns of Industrialisation

It would now be permanent to ask whether industrialisation in the modern world exhibits a well-defined, predictable pattern in different countries of the world, or no such uniformities are observed? In other words, do these countries which experience an industrial revolution follow a common pattern of industrial growth, or they chart their different courses and evolve disparate pattern of industrial evolution? In this context, we might analyse the patterns of industrialisation under two different economic systems, viz. the free enterprise system and the planned mixed economies. Let us try to find if under these two systems some uniform patterns of industrialisation can be observed.

(a) Pattern of Industrialisation in Free Enterprise Economies:- Studies concerning the process of industrialisation in "free economies" have been carried out by W.G. Hoffmann *(The Growth of Industrial Economies)* and the U.N.O. *(Patterns of Industrial Growth, 1938-1958)* by using cross-country and intertemporal data. Both the studies come to the conclusion that irrespective of the difference in resource endowments, location of countries and the state of technology, the pattern of industrialisation in these countries had always been identical.

Now what are the essential features of this pattern? It has been revealed by the studies that the process of industrialisation has passed through three well-defined stages which are as below:-

In the *first place*, as the industrial revolution starts in a free enterprise economy, the consumer goods industries such as textiles, food processing, leather goods and furniture industries are the ones to forge ahead and to experience higher rates of growth. During this stage of industrialisation these industries have been observed to contribute on as average five times more net output than the capital goods industries (such as metal working, transport goods, engineering and chemical goods industries). There are good reasons for the predominance of consumer goods industries in the initial stage of the industrial revolution. At this stage the time is yet not ripe for the speedy development of capital goods industries. The consumer goods industries require relatively small amount of capital and these use simple techniques of production. The traditional techniques can be slightly improved upon for use in these industries and the existing skills are adequate to make the beginning.

However, as time passes the capital goods industries start registering a higher rate of growth. Thus, industrial growth enters its *second stage.* The result of the higher growth rates of the capital goods industries diminishes somewhat the importance of the consumer goods industries so that at the end of this stage, the latter contribute a net output which is only two and a half times as large as that contributed by the former.

A number of factors contribute to the faster rate of growth of the capital goods industries in this stage of industrialisation. Firstly, as the consumer goods industries grow at a rapid pace in the initial stages of industrialisation, these tend to create a large market for

intermediate products like steel. Thus, the intermediate goods industries are likely to attract more and more labour and capital in order to take advantages of the rising demands for their products. Secondly, the rapid growth of consumer goods industries in the preceding stage would raise the supply of capital since a part of the profits earned by them would be reinvested. In the second stage, therefore, a part of this capital would be invested in the now more profitable capital goods industries. Besides, the rising supply of capital from these domestic sources, supplemented by the inflow of some foreign capital would now make it possible to set up the more capital intensive capital goods industries. Thirdly, it is also logical to argue that with the passage of time the consumer goods industries, to be more competitive would look for production methods that lower their costs of production. These methods might be more round-about and use more machinery to be able to enjoy economies of large scale. Thus, as the process of industrialisation proceeds the demand for capital goods would keep on rising thereby creating the *raisond' etre* for faster growth of the capital goods industries.

It is clear from the above that in the second stage of industrialisation factors operate both on the demand side as well as supply side for the rising dominance of the capital goods industries in the entire industrial structure.

However, the rise of the capital goods industries is a rapid that in the *third phase* of industrialisation the consumer goods industries are pushed still further to the background. Thus, in the third stage, the share of the net output of the capital and consumer goods industries is approximately the same. In this stage, not only do the factors mentioned above operate with a redoubled force to create conditions for a still more rapid growth of the capital goods industries, but some more factors might accelerate the process. For instance, with rising industrialisation, the relative resource endowment might change in favour of capital. Labour might become a scarce factor. This would encourage the use of capital intensive methods of production and create a still more buoyant market for capital goods.

Further, it is possible that with the development of the capital goods industries exports of capital goods both intermediate and final – might start, thereby giving a further boost to the capital goods industries.

In the *fourth phase* of industrialisation, the predominance of the capital goods industries is finally established. Now the net output of capital goods industries is more than that of the consumer goods industries. The country having reached this stage would be considered as a mature industrial economy. Countries like the U.S.A., the U.K. and Germany seem to have reached the Zenith of industrialisation long back.

The statistical studies which have observed the above pattern of industrialisation in the free enterprise economies have noted that none of the stages of industrialisation discussed above need take a definite predictable historical time span. In fact, some of the late-starter in industrial development caught up with the early-starters so that the two reached the same stage of industrialisation at approximately the same time period. Thus, in some countries export trade availability of capital and technical know-how, fiscal policy, location factors, and resources endowments are more favourable for an accelerated process of industrialisation than in others.

The observed pattern of industrial growth, as described above shows that there has been a secular decline in the share of net output of consumer goods industries in total industrial output. This has necessarily caused a structural change in the industrial sectors of those free enterprise economies which managed to industrialise themselves. The pattern has been observed to be so uniform that it would be considered as a law of capitalist industrial development.

However, the question is: Need this pattern of industrialisation be so universal in nature that it would be repeated in all the countries trying to industrialise themselves? In other words, is in the industrial growth of different countries some inherent logic which must compel them to go through these stages of industrial development as apart of some universal law whatever the institutional framework within which industrialisation is attempted, or there are some alternative patterns too which each country can adopt according to its own requirements? The answer is that although the pattern of industrialisation discussed earlier might be universally applicable in the capitalist, free enterprise world, yet under other institutional arrangements, other patterns of industrialisation are possible and have been observed. We might discuss these in some detail below.

(b) Patterns of Industrialisation in Planned and Mixed Economies:- Economic planning provides an opportunities to chart its own course and to shape its destiny according to its own requirements and will. Such an economy need not subject itself to the dictates of capitalistic laws and processes.

Patterns of industrialisation might be discussed separately in the context of the erstwhile centrally planes socialist economies and the mixed less developed countries. Taking the former first, we notice that the Soviet and the East European model of industrialisation was different from that observed in the capitalist West. In these centrally planned economies, till economic planning was adopted, the pattern of industrialisation started, for example, in Czarist Russia, with the consumer goods industries predominating in the emerging industrial structure.

However, with the adoption of economic planning by these countries a different pattern of industrialisation emerged. They started with high planned rates of growth of capital goods industries, with the consumer goods industries being relegated to the background. It has been argued that the early planned growth of capital goods sector promotes a relatively high rate of growth of the over-all industrial sector and indeed the entire economy. In later years, as the these planned economies thought of promoting the welfare of the people by providing them opportunities to increase their consumption of various goods necessitated the acceleration of the rates of growth of consumer goods industries.

Thus, it would be clear that the pattern of industrialisation observed in the capitalist countries was reversed under economic planning in the socialist countries, the latter starting with high rates of growth of capital goods industries and ending up with higher growth rates of consumer goods industries.

The less developed countries (LDCs) being mixed economies seem to have evolved their own pattern of industrialisation. This consists of what might be termed as import

substitution-led industrialisation and exports-led industrialisation. We might discuss this pattern in some detail below:-

(i) Import Substitution-led industrialisation (or ISI):- Most LDCs started their planned economic development at a time when their industrial structure was highly lop-sided. These countries were passing through the first stage of industrialisation under a free enterprise system, with most industries producing consumer goods. Major part of their demand for capital goods and some demand for consumer goods too was being satisfied out of imports. Many LDCs found this pattern of production and trade to be unsatisfactory. They, therefore, produced economic plans which provided for the development of import-substitution industries. Countries like India developed by and large those import substitution industries in which they possessed a potential comparative advantage. Other like some Latin American Countries started developing all types of import-substitution industries indiscriminately. In any case, these countries had evolved a new pattern of industrialisation called the ISI types.

The ISI had generated its own stresses and strains in the LDCs. In some cases, since the cheaper imports had been substituted with dearer import substitutes with the industries producing the latter enjoying no inherent has led to inflationary pressures in these countries, which has partly led to demands for import liberalisation.

In most of the countries, however, ISI pattern had the immediate adverse impact upon the balance of payments. Although import substitution had been planned with a view to relieve the pressure on imports, the ISI had the opposite effect. The reason was that the import substitution industries, being most capital, skill and raw material intensive, immediately created demand for these imported inputs thereby still further aggravating the balance of payments position.

The fact, however, remains that the ISI has created a base for further industrialisation in many LDCs. But further industrialisation merely based on domestic markets has slowed down the process since it came up against the demand constraint. Therefore, as an alternative to the ISI pattern, the exports-led industrialisation was suggested for these countries, especially by the international financial institutions like World Bank and the I.M.F. This pattern is being adopted by an increasing number of LDCs.

(ii) Exports – led Industrialisation (or EI):- Because of the strains that is generated in LDCs this inward-looking industrialisation, which ISI essentially is, most LDCs have adopted the EI pattern under which plans are prepared to develop those industries in which the countries have an overwhelming comparative advantage over the developed countries and thus the products of these industries can be exported abroad. Theoretically, since any one LDC would produce a very small proportion of the total world output of the concerned goods, there would be immense scope for the expansion of the market for such goods. Such a pattern of industrialisation would directly contribute towards an improvement in the balance of payments position of these countries. If this pattern succeeds, it would lead the very process of economic development in LDCs.

At the moment, the EI pattern has greatly succeeded in some LDCs. But in others problems have arisen. The reason is that pushing up exports of manufacturers produced in

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LDCs in the developed country markets is a difficult proposition. The latter sometimes impose high tariff and non-tariff barriers on such exports of LDCs. Even in the case of labour-intensive goods in which the LDCs have a clear comparative advantage over the developed countries, the latter have protected their high cost domestic industries against competition from the cheaper LDC products. This has become a bone of contention in international trade negotiations.

Thus, for the success of the EI pattern of industrialisation, some institutional arrangement would have to be forged by the World Community, in the absence of which a more rational trade pattern would continue to be ignored.

The LDCs have thus evolved their own pattern of industrial development which is distinct from those observed in the capitalist and the centrally planned socialist countries. Some of these countries are, however, still wrestling with the peculiar problems created by their patterns of industrialisation

Exercise

1.   Define Industrial Growth?

2.   Discuss the phases of Industrial Growth.

5.   Summary

In the present lesson, you first of all studied how the different countries of the world passed through the first stage of industrialisation in four great waves of modern industrialisation. You also noted that in free enterprise economies, the pattern of industrialisation has passed through four predictable stages. But the erstwhile planned economies and the mixed economies of the LDCs have followed their own pattern of industrialisation.

6.   Glossary

- **Consumer Goods Industries:** Consumer goods industry produce goods for direct use by consumer, that means the finished goods produced by the industry can be directly used by consumers.

- **Capital Goods Industry:** Capital Goods Sector includes Companies that manufacture machinery used to create capital goods, electrical equipment, aerospace and defence, engineering and construction projects.

- **Import Substitution:** Import Substitution means the satisfaction of a greater proportion of a country's total demand for goods (production + imports) through its own domestic production.

7.   Answers to Self Check Exercise

Answer to Q1. Refer to Section 1 and 3.

Answer to Q2. Refer to Section 3.

8.   References/Suggested Readings

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- U.N.O. Patterns of industrial Growth, 1938-1958.

9.   Terminal Questions

Q1.   Define Industrial Growth. Discuss the phases of Industrial Growth.

Q2.   Discuss the process of industrialisation in planned and mixed economies.

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THEORY OF THE FIRM AND PRICING

STRUCTURE

1.   Introduction

In the preceding four lessons you have been introduced to such topics in Industrial Economics as the nature and scope of this branch of the subject; the process, patterns and phase of industrialisation; and its need, importance and problems in LDCs. In the present and the next lesson you will study the theory of industrial firm, which is basically borrowed from microeconomics bur which has also been tempered by considerations of empirical realism. In other words, we shall not only look at the microeconomic theory of the firm, especially its pricing behaviour aspect, but also notice how far the changes having occurred on the industrial scene since the days of Marshall and other neo-classical economists have necessitated changes in the theory as well. In the present lesson, you will be particularly studying the objectives of the industrial firm and the two contending pricing principles, viz. the marginalist principle and the full-cost pricing principle. At the end of the lesson, we shall discuss the problem of allocation of costs of joint products.

2.   Learning Objectives

After going through this lesson, you will be able to:-

*   Understand and analyse the objectives of a firm within the industry.

*   Understand the theory of Pricing

3.   Objectives of the Industrial Firm

In the traditional, neo-classical microeconomics, there is no scope for *alternative* objectives of the firm because it assumes a single goal of the firm, viz. that of profit maximization, upon which the entire super-structure of neo-classical theory of value has been built up. However, as you have read in Lesson 1, industrial economics tends to test the microeconomic theories of the firm and industry on the touch stone of the real world experience, which distinguishes this branch of economics from traditional microeconomics. Numerous empirical studies and behaviouristic analyses have come up with several goals of industrial firms as alternatives to the profit maximization objective. Therefore, a discussion of the objectives of the firm can be carried on in terms of profit maximization versus other goals. Besides, another distinction can be made in terms of the maximization and non-maximisation objectives of firms. On these bases, the following are the alternative objectives of an industrial firm.

(a)   The Profit Maximisation objective

As noted above, the traditional theory of pricing-output behaviour of firms is based on the profit maximisation hypothesis. The firm pursues pricing and output policies with a single-minded objective of profit maximisation. A great merit of this hypothesis is that once we start from this position as given, the entire business behaviour, like how prices will be set, how plant size will be changed in the long run, how optimum output will be determined, etc., automatically follows. Even today, when other objectives of the firms have also started attracting attention, it is recognized that the profit maximisation goal is still relevant in the case of smaller firms managed by their owners.

Although the profit maximization hypothesis is based on irrefutable logic, it has faced a barrage of criticism in the post-second world war period. The criticism is based on three primarily empirical considerations. In the *first place*, the empiricists like Hell and Hitch, P.W.S. Andrews, G.L.S. Shackle, R.H. Barback, etc. through their studies of actual business behaviour have shown that very few of the firms investigated by them had profit maximization as their goal. *Secondly,* the behavioural theorists like R.M. Cyert and J.G. March, who have developed a "realism-in-process" or "behavioural approach" to the study of the firm, and the managerial theorists like E.T. Penrose, Robert Marris, O.E. Williamson and W.J. Baumol, who have developed managerial theories of the firm, do not consider profit maximization as a valid assumption regarding the goals and motivations of the firm in the contemporary world. *Thirdly*, some studies have also come up with statistical cost curves, which unlike the U-shaped cost functions of the traditional microeconomic theory, are L-shaped, with average and marginal costs remaining constant over a fairly wide range of output. One implication of such cost curves is that they do not yield a unique (i.e. a single) profit maximization output. In this context too, the profit maximization goal of the firm becomes irrelevant since the analysis using such L-shaped AC and MC curves will not result in a definite solution of optimum output, as happens with the U-shaped cost curves.

In view of the foregoing problems, the profit maximisation goal of the firm has come under a cloud. But, this criticism notwithstanding, the neo-classical theory of value having profit maximisation as its core is still very much a part of the theory of pricing behaviour included in the textbooks. The reason for the survival of profit maximisation and the theory of

pricing behaviour based on it is that the deductions about the behaviour of firms following from this hypothesis are completely predictable. In other words, a neat theory has been built up on the basis of this hypotheses, a merit which cannot be claimed by the alternative hypotheses of goals of the firm.

Besides, some neo-Marshallians like Fritz Machlup have put up a spirited defence of marginalism explicitly and profit maximisation hypothesis by implication. Machlup argues that the criticism can be attributed to "a failure to understand the analysis, to faulty research techniques; or to mistaken interpretation of findings" of the critics research. The defenders of profit maximisation hypothesis also very cogently argue that the method of refuting the validating of a theory is not to question its assumptions. Taking the assumptions as given, you have to see whether or not the theory makes correct predictions.

Some empirical evidence has also been marshalled in favour of the traditional theory. For instance, J.S. Earley studied the pricing behaviour of 100 "excellently managed" firms in the U.S.A. and found that these firms set their prices according to a method which broadly accords with the traditional theory.

(b) Alternative Hypotheses About Firm's Objectives

As would be clear from the foregoing, the empiricists, the behaviourists and the managerial capitalism theorists, having disowned profit maximisation as the goal of industrial firms, have offered their own alternative hypotheses regarding the objectives of the firm. These are discussed below.

(i) The Empiricists:- There is a class of economists and researchers who have attempted to study the actual business behaviour through which they have offered alternative hypothesis relating to the goal of the firm. Among these empiricists are R.L. Hall and C.J. Hitch, P.W.S. Andrews, G.L.S. Shackle, R.H. Barback, etc. Hall and Hitch has led the empiricist school with their article published in *Oxford Economic Paper*, 1939. Other followed up their empirical work in subsequent years.

Among these the Hall and Hitch analysis of actual business behaviour was perhaps the most innovative and we summarise their conclusions here. According to them, the marginalist theory of pricing behaviour, based on the principles that (i) firms maximise their profits, and (ii) for that they expand their output up to the point where MC and MR are equal, is principally made to apply only to the market situations of perfect competition, monopoly, and monopolistic competition, and the cases of oligopoly are considered to be exceptional and, therefore, do not receive adequate attention in that theory. In the real world oligopoly is the dominant market form.

For equating MC and MR, the enterpreneurs should be able to make some estimate to the demand elasticity and position of the demand curve which they face in the market, and also to actually equate the two marginal quantities (i.e. MC and MR). In this connection, Hall and Hitch observe that, "We tried with very little success, to get from the enterpreneurs whom we saw information about elasticity of demand and about the relation between price and marginal cost. Most of our informants were vague about anything so precise as elasticity, and since most of them produce a wide variety of products we did not know how much to rely on

illustrate figures of cost. In addition, many perhaps most, apparently make no effort, even implicly, to estimate elasticities of demand or marginal (as opposed to average prime) cost; and those who so, the majority considered the information of little or no relevance to the pricing process save perhaps in very exceptional conditions.

According to Hall and Hitch the most striking feature of their empirical study was the number of firms which did not aim at profit maximisation. Indeed, an overwhelming majority of the firms set their prices according to the "full cost" pricing principle (while shall be discussed subsequently in this lesson.) Under this principle, the firms merely add a conventional profit margin to their average cost of production. This amounts to saying that (if the Hall and Hitch study in fact describe the typical business behaviour) the enterpreneurs behaviour is not a maximising one. They actually behave as if to earn a certain percentage of profits.

Subsequent Studies:- The subsequent studies, based on empirical work have by and large corroborated the Hall and Hitch position in respects of pricing behaviour and business goals. For instance, P.W. Andrews wrote several years later that "An established business in a stable or growing market will normally fix its price quotations on the basis of a detailed estimate of its actual costs of production, direct and indirect separately, adding to these margin as for net profit. Alternatively, quoted price may be reached on the basis of a much more explicitly rule-of-thumb basis of average direct costs plus an allowance for gross profit."

It is thus clear that the empiricists negate profit maximisation as the basis of business behaviour and in its place consider the earing of a pre-determined profit margin as the goal of enterpreneurs.

(ii) The Managerial Capitalism Theorists:- Most economists agree these days that the profit maximisation goal was relevant only to that stage of industrial development when firms were typically small in size and were managed by their owners. Now there has been a sea-change in the form of industrial organisation. Three changes from the former model of a firm characterize the contemporary industrial scene: (i) A typical firm is a giant corporation; (ii) there is a separation between ownership and control, with the former resting with a widely dispersed body of shareholders, while the latter is exercised by the standard managers; and (iii) the managers pursue their own objective, although they cannot completely ignore the interests of the owners. Thus the contemporary industrial system is referred to as managerial or corporate capitalism. Under this system the conventional entrepreneurial function is performed partly by the shareholders (as the bearers of risk and uncertainty) and partly by the managers (as the real decision-makers).

The idea of managerial capitalism theories is not new. The start of the managerial capitalism theories is traces to the writings of Thornstein Veblen (1904), which were followed by Joseph Schumpeter (1911), A. Berle and G. Means (1932) and Edith Penrose (1959). However, these theories have been primarily developed in the post-1960 period. The objectives of the firm which emerge from these later theories are discussed below:-

Baumol's Sales Maximisation Hypotheses:- Under this hypotheses the objectives of the firm are discussed in the context of a large corporation operating under conditions of oligopoly. Baumol assumes a maximising behaviour of firms, but instead of profit maximisation, the firms in the model maximise sales revenue. Profits are not unimportant but

a minimum profits level is a constraint on the sales revenue maximisation goal. So firms try to maximise sales revenue subject to the minimum profits constraints. Maximisation of sales revenue is important for the managers because the size of sales determines the value of variables which are important for their own utility maximisation, such as their salary, status, power, etc.

Williamson's Managerial Discretion Hypotheses:- O.E. Williamson published a book *(The Economics of Discretionary Behaviour: Managerial Objective in a Theory of the Firm)* in 1964, in which it was hypothesized that the corporate managers have a self-interest seeking behaviour. In the modern corporation, with ownership being divorced from control, the top management enjoys a great deal of freedom of action or discretion which permits them to pursed their own self-interest. In other words, the managers have a utility function which they try to maximise. The managers' utility function is comprised of such variables as salary, the number and quality of staff working under them, their perquisites, etc. So, the managers try to maximise their own utility subject to a minimum profits constraint.

Marris Managerial Utility Maximisation Hypothesis:- Robert Marris in his book *The Economics of Managerial Capitalism* (1964) argues that the managers who control a corporate enterprise attempt to maximise their own welfare rather than that of the owners of the firm. The managerial utility function is of the form U = U (A,V), where U = total utility or welfare, A = the rate of growth of the productive assets of the firm, and V = ratio of market value of the share (equity) to their book value. It is thus clear that the managers try to maximise their own utility by maximising the growth rate of the firm (say, in terms of output or capital formation) and the valuation ratio of its equity capital. As the size of the firm grows, so do the salaries, perquisites and promotion opportunities of the managers. V in fact defines the constraint subject to which the managers can promote their own interests. V measures the financial security to the firm. A high value of V (i.e. a high market value of its shares) minimizes the threat of takeover of the firms, keeps the shareholders happy and ensures adequate supply of funds to the firm. Thus the proximate goal of the firm is the maximisation of its growth rate the ultimate goal is to maximise the utility of the managers.

It is now clear from the foregoing outline of the theories of managerial capitalism that in the modern large corporation, which is characterized by separation of ownership from control, the managers try to maximise their own welfare rather than profits or any other variable relevant for the interests of the owners of the firm. The managers seem to have a well-defined utility function. In that utility function, sales revenue, discretionary powers, growth rate of the firm, etc. are important variables through which utility maximisation takes place. Profits are not unimportant, but these only act as a constraint on the utility maximising behaviour of the managers.

(iii) Goals of the Firms Under Behavioural Theory: The chied proponents of the Behavioural Theory of the firm are R.M. Cyert and J.G. March (*A Behavioural Theory of the Firm, 1963*). The theory is based on two basic propositions: (a) the modern corporate enterprises (to which this theory applies) are not affected so much by the market conditions as by the internal freedom which they enjoy in evolving decision strategies of rules that become a part of the decision-making system within the firm; and (b) the conduct of such firms is characterized by the aim to achieve a satisfactory aspiration level of anything like

profits. This assumes a *satisfactory behaviour* rather than minimizing behaviour on the part of the firm.

The theory focuses on the internal decision-making structure of the firm. Within the firm, according to this theory the decision making structure comprises of a *coalition of individuals* or a group consisting of directors, managers, shareholders, creditors, customers and workers of the firm. So a firm is an organizational until within which individuals who have a stake in the organisation interact with each other. The goals of the firm are set and modified through discussions and pressures within the coalition. The goals of different groups within the coalition may be conflicting. The goals of different groups may be viewed as the demands which are satisfied through payments. For example, in order to retain a particular specialist in the firm, a particular policy commitment (like making so much R&D expenditure or so much expenditure on advertisement, etc.) may have to be made. The goals of the firm thus keep on changing in response to the pressures arising within the coalition.

In the determination of price and output of the firm, however, shifting goals are a disadvantage, therefore, for purpose of price and output determination, (i) a small set of operational goals is assumed, (ii) this set of goals is assumed to be fixed, and (iii) the goals which would ordinarily enter price and output determination are empirically determined.

This set of organizational goals, according to this theory, reasonably well consists of five different goals, which are as below:-

(1) The Production Goal:- This goal comprises of two components, viz. smoothing goal (that production should fluctuate between periods only within a given range) and the level-of-production goal (that a certain level of production is to be attained or exceeded). It is clear that this goal will satisfy those within the coalition, like workers and managers, who are interested instable employment or a certain rate of growth of the firm.

(2) Inventory Goal:- This goal sums up the aspiration with respect to finished goods inventory (i.e. stocks) levels. The members of the coalition who would create pressures for maintaining a certain absolute level of inventories or a certain inventory range may be groups like salesmen & customers. The inventory goal will have an intimate bearing on the determination of output and sales of the firm.

(3) Sales Goal:- Several members of the coalition may be interested in the firm pursuing a sales goal. It embodies the aspiration with respect to the level of sales, which may be stated in terms of the physical amount or value of the sales. The achievement a certain quantum of sales represents the economic health of the unit and also shows how the firm has been performing over time.

(4) Market-share Goal:- This goal may be an alternative to or complementary with the sales goal. Market-share goal (i.e. ensuring that the firm captures a given share of the total supply of the industry) represents an index of the comparative performance of a firm which will satisfy several members of the coalition, such as the financiers and managers of the firm.

(5) Profit Goal:- A firm cannot but have a certain profit goal. A profits goal satisfies members of the coalition in two respects, viz. (i) profits are a source of dividends to the shareholders as well as a determinant of reinvestment of internal funds which gives the firm a

freedom from the constraints of external sources of finance, and (ii) the profits are a measure for the management of the firm with which to evaluate its own performance. The profit goal may be expressed in terms of absolute level of profits or a certain rate of return on capital invested.

4.   Theory of Pricing

Just as the traditional and the modern theory differs from each other on the question of goals of the firm, similarly these differ on the question of the pricing principles which are followed by the firms. There are two broad pricing principles, either of which is supposed to be adopted by a firm to determine the price of its product. One of these is the traditional marginalist principle and the other is the relatively modern full-cost pricing principle. These two pricing principles shall be discussed in some detail below:-

(a)   The Marginalist Pricing Principle

The marginalist revolution of the 19th century, based on the works of J.M. Clark, A. Marshall, L. Walras, K. Wicksell, etc., gave birth to this neo-classical theory of pricing. The basic assumptions of this theory are that (i) decision-making within firms is carried out by means of marginal analysis, and (ii) firms attempt to maximise their profits. Basically, marginal analysis refers to taking decisions on the basis of incremental or marginal changes in the value of variables (like output, sale or costs) most relevant in the decision-making process.

As is already known to you from your knowledge of microeconomics, a firm maximise its profits at that level of output where its marginal cost is equal to its marginal revenue. The marginalist principle formally is as under:-

Suppose that cost is a function of quantity produced, C (q), and similarly revenue is also a function of quantity produced, R (q). The profit function is simply R (q) – C (q). It reaches a maximum value when its derivative with respect to q is zero, i.e. when $\frac{dR(q)}{dq} - \frac{dC(q)}{dq} = 0$. In other words, profits would be the maximum when $\frac{dR(q)}{dq} = \frac{dC(q)}{dq}$. The left hand side of this equation is merely the mathematical expression of marginal revenue (change in revenue per change in q), and the right hand side is simply the marginal cost. It is thus clear that profits are maximised where marginal revenue equals marginal cost. But what about determination of the price? The marginalist principle says that under perfect competition the firm is a price-taker and the given price for a firm is determined by the interaction between market demand and supply of the product. Under this market situation, a firm takes that price as given, but since the firm's price and marginal revenue would be equal at all levels of output the firm would be maximising its profits when it equated the given price with its marginal cost of production (provided that the MC at that level of output should be rising).

Under other market conditions like monopoly, monopolistic competition and oligopoly, the firm is a price maker to a lesser or greater extent, depending on the monopoly power enjoyed by it in the market. In such cases, the marginalist principle lays down that the firm will obey the rule of equating MC with MR to maximise its profit, and having determined the level

of output corresponding to the point of equality between MC and MR, the firm will leave the price to be determined by the market, i.e. by the demand (or average revenue) curve of the firm.

The marginalist theory of marginalism has held away for a long period of time. Even now the theory is far from having been discarded. But the period since the Second World War has witnessed increasing attacks on this theory. It must be conceded that theoretically, the marginalist theory has stood firm as a rock. The main attacks on the theory are from the empiricists and the behaviourists. These critics point out that the very assumptions of the marginalist theory of pricing are empirically invalid. The firms in the real world operate primarily in oligopolistic markets while the traditional theory had been developed within the framework of market structures like perfect competition, monopoly and monopolistic competition. Secondly, the traditional theory had assumed a form of industrial organisation under which individual proprietorship and combination of owner-manager role were considered to be dominant. Such a form of business organisation naturally yielded profit maximisation as the goal of the firm. The critics point out that in the contemporary world, a typical firm in a large corporation in which there is a divorce between ownership and control. The top salaried managers control the firm and they set the objectives of the firm so as to maximise their own objective function (as discussed earlier). Thirdly, the empiricists point out that the actual pricing behaviour of the firms does not accord with the traditional theory either because the requisite information regarding the elasticity of demand (and, therefore, the shape of the demand curve) or the marginal cost is not available to the firms, or they do not consider the information of any relevance to their pricing process.

(b)   The 'Full Cost' Pricing Principle

The empiricists believe that most firms of the real world follow a 'full cost' rather than a marginal rule in setting the price of their product. The idea of 'full cost' pricing principle originated with the aforementioned article of Hall and Hitch, published in the *Oxford Economic Papers, 1939*. The following explanation of this pricing principle is with reference to this article. The forms of the real world do not seem to aim at profit maximisation through equating their MC and MR. The firms think in altogether different terms. In pricing their product they apply a rule of thumb which is called 'full cost'.

The right price according to the firms in one which is based on full average cost (including a conventional allowance for profit). Although the notion of 'full cost' varies from firm to firm, yet a generalised procedure of computing 'full cost' is as follows: Prime (i.e. direct or variable) cost per unit is taken as the base, to which a percentage addition is made to cover the overhead (i.e. indirect or fixed) cost. Further, a conventional addition (frequently 10%) is made for profit. The last-mentioned is also referred to as 'mark-up' and, therefore, 'full cost' pricing is also sometimes referred to as 'Mark-up pricing'. Selling costs are commonly added to the overhead cost. Although, it may not be universal rule, yet in many cases, price is raised above the 'full cost' when demand is exceptionally high, and a lower than 'full cost' may be changed in periods of exceptionally depressed demand. How does competition affect the price under this principle? It is felt that as competition intensifies, firms adjust their profit margin, so that higher cost firms would reduce it and more efficient firms would raise it, thereby ensuring that same price ruled for similar products within the 'group' of competing firms. The usual procedures in setting a common price with the 'group' is to follow

a strong firm a price leader which sets its price at the full cost level; or alternatively, to come to an agreement on a common place.

A further question which would arise is: what is the level of output taken for calculating average overhead (fixed) cost. These are different conventions which seem to be followed in this respect: some firms take actual or estimated output, while others take the conventionally considered full capacity output for this purpose.

What, according to the empiricists is the reason for the firms' preference for use of the 'full cost' rather than the marginal rule principle in pricing their products? Apart from the existence of a strong tradition in the use of 'full cost' pricing principle, Hall and Hitch, from the replies of enterpreneurs, recorded six reasons for preference of the firms to use this principle: (i) The firms do not know their demand or MR curve because of lack of knowledge of consumer preferences, or the rivals reactions to the price changes brought about by the firm. (ii) The fear of the firms that if they cut the price, rivals would follow suit. (iii) The fear that rivals will not raise price at all or as much as a given firm does. (iv) The firms conviction that they should stick to a given price, a lowering it even for the group as a whole will not pay because of low elasticity of demand for their products taken together. (v) If the price charged is in the neighbourhood of full cost, the new entrants cannot undercut this price in the long run. (vi) The 'full cost' price becomes conventional to which the customers also become attached and they do not like any change in it. It would be noted that if this last point explains the actual behaviour of the firm, it would be almost impossible for them to equate MC with MR when output has to be changed in the short run.

The 'full cost' pricing can also be explained diagrammatically as below:-
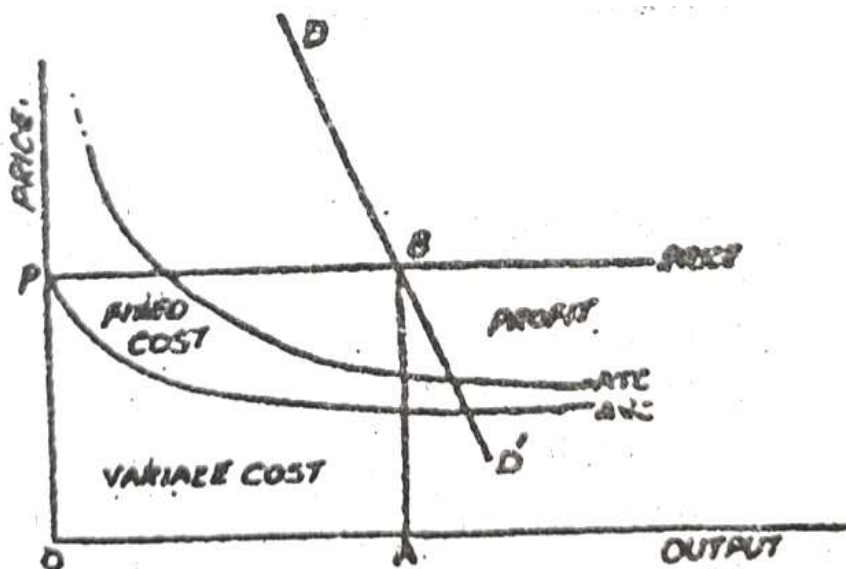

Fig. 5.1

In the diagram the firm is supposed to select a normal output OA as also the mark-up includes fixed costs and profit. This gives the firm a price equal to OP (which equals AB). It may be noted that the price OP is determined, to start with by AVC. That is the reason why 'full cost' pricing is also sometimes referred to as average-cost pricing. Obviously, with any change in AVC, the price will also change. This price is such that with the shift of the demand curve to the left or the right it does not change. The supply curve PB is, therefore, horizontal. The stickness of price if considered to be a peculiar feature of the oligopolistic markets.

5.   Allocation of Cost in Joint Products

In the theory of the firm, especially, a multi-product firm, a problem of jointness of supply sometimes arises. That is, a firm produces two or more goods jointly in such a way that when the increases the output of one good, the supply of the other good (or goods) also increases. From animal husbandry a classic example of joint supply that is usually given is that of wool and mutton, or from agriculture, that of cotton and cotton-seed. In industry also cases of joint industry sometimes arise, such as, for example, the production of petrol and heavier oils or coke and gas, etc.

It is widely recognized that when commodities are jointly supplied, there is a difficulty in allocating to each of them its share of the joint cost of production. In order to get out of this difficulty the subject of marginal substitution is usually used. But in the case of jointly supplied goods too, there are two possibilities, one where the proportions in which such goods are produced can be changes, and the other where the proportions are technically fixed. In the latter case, the allocation of marginal substitution is used.

Take the case of wool and mutton, which as a standard example of joint products. In countries, like Australia where wool and mutton have been items of considerable importance in export trade, breeds of sheep giving either more wool or more mutton have been substituted for such other depending on the change in demand. If, for example, the cost of maintaining the number of sheep giving wool, and the quantity of wool produced from them is estimated, and then (as the demand of mutton increases) these are substituted with the cross-breed sheep giving more mutton, but the *same quantity of wool* as before the substitution, the increase in the cost of rearing this new breed of sheep would be attributed entirely to the extra mutton obtained from them. This extra cost can be regarded as the marginal cost of mutton. The same argument can apply if the demand for wool rises and now the breed of sheep giving more wool is substituted for the breed which existed earlier. This is the general principle followed in estimating marginal costs of a class of joint products. But it will be clear that the problem of *allocation* of costs still remains unsolved.

Exercise

1.   Discuss the profit maximization objective of the firm.

2.   Discuss the marginalist pricing principle detail.

6.   Summary

As we discussed, in the traditional neo-classical microeconomics there was single goal of the firm, i.e., profit maximization. However, numerous empirical studies like Hall and Hitch, P.W.S Andrews, G.L.S. Shackle, and R.H. Barback found that very few of the firms

investigated by them had profit maximization as their goal. Behaviouristic theorists like R.M. Cyert and J.C. March and managerial theorists like E.T. Penrose, Robert Morris, O.E. Williamson, and W.J. Baumol do not consider profit maximization as a valid assumption regarding the goal of the firm in the contemporary world. Further, the traditional and modern theories differ on the question of pricing principles which are followed by the firms. One of these is the marginal principle and the other is relatively modern full cost pricing principle. In the traditional marginal principle, marginal analysis refers to making decisions based on incremental or marginal changes in the value of variables (output, sale or costs) most relevant in the decision making process. However, the empiricists believe that the most firms in the real world follow a 'full-cost' rather than a marginal principle in setting the price of a product.

7.   Glossary

- Full-cost Pricing: Full-cost pricing is a practice where the price of a product is calculated on the basis of its direct cost per unit of output plus a markup to cover overhead cost and profits.

- Marginal Analysis: Marginal Analysis refers to taking decisions on the basis of incremental value and marginal changes in the value of variables.

- Utility: Utility refers to the comprehensive benefits obtained from consuming and good or service.

8.   Answers to Self Check Exercise

Answer to Q1 Refer to Section 3.

Answer to Q2 Refer to Section 4.

9.   References/Suggested Readings

- Barthwal, R. (1992). Microeconomic Analysis. New Age International (P) Limited.

- Cohen, K.J., and Cyert, R.M. (1981). Theory of the firm.

- Henderson, H.D. (1964). Supply and Demand. Nisbet, Weluyn.

- Jones, T.T., and Cockerill, T.A. (1984). Structure and Performance of Industries. Philip Allen.

- Koutsoyiannis, A. (1985). Modern Microeconomics. English Language Book Society/Macmillan.

10.   Terminal Questions

Q1.   What do you mean by firm? What are the objectives of a firm in Industry?

Q2.   Discuss the 'Full Cost' pricing principle with the help of diagram.

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LESSON-6

MONOPOLY PRICING AND ITS WELFARE IMPLICATIONS

STRUCTURE

1. Introduction

2. Learning Objectives

3. Monopoly pricing Decision

4. Characteristics of Monopoly Pricing

5. Welfare Implications of Monopoly Pricing

6. Summary

7. Glossary

8. Answers to Self Check Exercises

9. References/Suggested Readings

10. Terminal Questions

1. Introduction

In traditional microeconomics a spectrum of market structures is assumed, at one end of which is perfect competition and at the other is monopoly. In the latter market situation a single firm accounts for the total supply of the commodity in the market. On the demand side it is assumed that there is a large number of buyers none of whom is big enough to influence the market price.

Besides the monopoly market being characterized by the existence of a single producer/seller, another distinguishing feature of such a market is that the demand for its product is reasonably independent of the price of other products. In other words, the cross elasticity of demand for the monopolist's product is fairly low if not zero. Yet another feature of a monopoly market structure is that there are barriers to entry.

On the demand side, the firm faces the market demand curve while taking pricing and output decisions. Since this demand curve is downward sloping, the monopoly firm will have to reduce its price if it wants to sell an additional unit of its output.

While dealing with the question of pricing-output behaviour or the equilibrium of a monopoly firm, it is usually assumed that the cost curves of the firm are the same as under perfect competition. Thus any differences which arise in the pricing-output behaviour of a firm

under perfect competition and monopoly are primarily caused by factors operating on the demand or the revenue side.

Further, for analyzing the pricing output decision of the monopoly firm, it is assumed that the monopolist aims at maximisation of profits.

With these preliminary observations let us proceed to examine the price policy of the monopoly firm.

2. Learning Objectives

Upon completion of this lesson, you will have a comprehensive understanding of:-

- Pricing decisions under monopoly

- Characteristics of monopoly pricing

- Welfare Implications of Monopoly Pricing

3. Monopoly Pricing Decision

(a) The Short Run:- Give the market demand curve (i.e. the AR curve of the firm and its corresponding MR curve) and the short run cost curves of the firm, the monopolist will be maximising profits or the firm will be in short run equilibrium when (i) MC equals MR, and (ii) the slope of MC curve > the slope of the MR curve at the points of their intersection. This is shown in Fig 6.1 below:-

FIG. 6.1.

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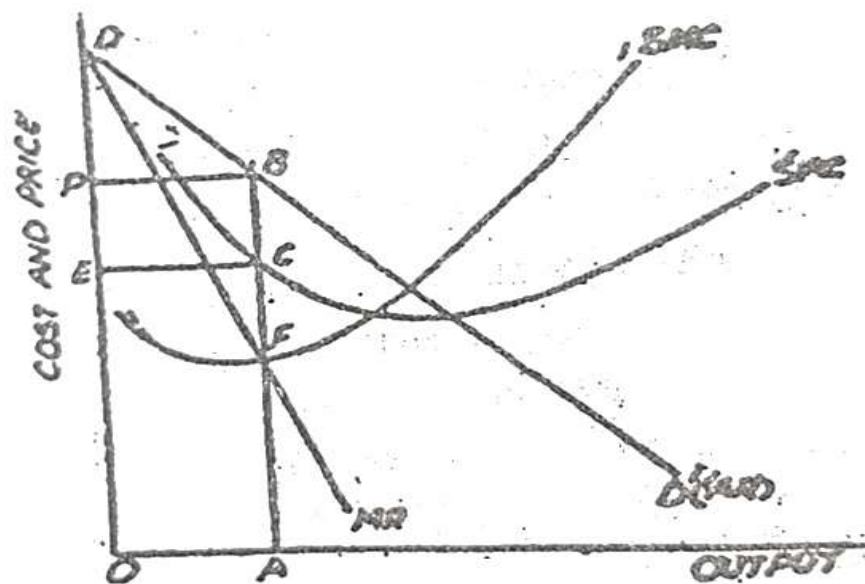
In Fig. 6.1, the two conditions mentioned earlier satisfied corresponding to the output level OA. This, therefore, is the output level where the firm maximizes its profits. The profits earned by the firm are shown by the rectangle PBCE. These profits will decline if output level is either greater or less than OA.

Corresponding to the profit maximising output OA, price will be equal to OP (=AB). How has this price come to be determine? It is usually stated that under perfect competition a firm is a price taker, while a monopoly is a price maker. How is a monopoly firm a price maker in the foregoing analysis? For profit maximisation a monopolist is faced with two decisions, viz. how much to produce and what price to charge in order to maximise profits. It must be understood that price setting and output determination (as would be clear from Fig. 1) are interdependent. Corresponding to each output level there is a price and similarly corresponding to each price there is an output level. So, when one of these is decided upon, the other decision will automatically follow. Thus, a monopoly firm will not (an in fact cannot) decide both simultaneously. It will either decide what output to produce and then leave for the market at what price this quantity the buyers are prepared to purchase, or decide to charge and then sell the output that the market will take at that price. The monopolist cannot decide both price and output independently of each other. In the foregoing analysis, the monopolist decides how much to produce, corresponding to the two conditions for profit maximisation, and then finds out the point on the D'D (AR) curve. Thus, corresponding to the profit maximising output OA, the point on the demand curve is B which results in the determination of AB (=OP) price. This is in fact the price which the buyers are prepared to pay, as shown by their demand curve, for the quantity OA.

The process of price determination under monopoly has implications for the welfare of the society, a topic which we shall discuss more fully subsequently in this lesson. Here, a more pertinent question which arises is: how will the price and output change if (hypothetically speaking) a competitive market is converted into a monopoly? We have noted above that in the analysis of price-output behaviour of a monopoly we use the same cost curves as under perfect competition. The main difference lies in the nature of the demand and revenue curves which the firm faces under these two market forms. It is, therefore, easy to notice in Fig I. Above that the more competitive and industry, the more to the right of point F will MC be equal to MR. This is so because competition makes the D'D curve rotate rightwards, so that in the extreme case of perfect competition, the curve will become completely horizontal. The effect of such rotation of the AR curve will be that the point of intersection between the MC and MR will necessarily be to the right of point F which means a higher necessarily be to the right of point F which means a higher output than OA and possibly a lower price than OP. Thus it is rightly said that a monopolist charges a higher price and supplies a lower output than under competitive conditions.

(b) The Long Run:- Since it is assumed that under monopoly entry of rivals is barred in the long run, the firm is not obliged to establish a bigger plant, nor to make a full capacity use of the existing plant. Weather the plant size would be expanded and whether the established plant would be fully utilised, under-utilised or over-utilised will entirely be determined by the market demand for the monopolist's product. Keeping long run demand in view, the monopolist will set up a plant and decide its rate of utilisation with the view to maximise profits. His profits even in the long run way continue to be super-normal in nature.

Depending on the size of market demand, it is usually hypothesised that in the long run, the monopolist will (i) set up a sub-optimal plant and utilised it at less than full capacity, or (ii) of there is large demand, set up a larger than optimal plant and utilised it at more than full capacity, or (iii) set up just the optimum plant and utilised it at full capacity.

Whichever of these alternative behavioural patterns is followed in the long run, the process of price determination remains essentially the same. The firm produces that output which equates its long run MC with MR in order to maximise its profits. The price is determined by the rule that the profit maximising output will be placed in the market and the price which the market is prepared to pay for it will be charged.

The price so determined is usually higher than the price under competitive conditions because normally the firm will not set up an optimum plant and utilise that plant at full capacity so as to be able to produce at minimum long run average cost. Due to the failure to do so the output gets restricted and the restricted output gets produced at higher LAC, resulting in a long run price which is higher than the price that would prevail under competitive conditions. The fact that the monopolist may be earning super-normal profits even in the long run indicates that a high monopoly price will prevail in that period.

So far, we have spoken of a single monopoly price. But, as is well-known, a monopolist in order to maximise profits me practise price discrimination. As would be noted subsequently, discriminating monopoly, as it is usually called, has important welfare implications. Price discrimination exists when different prices are charged for the same good in different sub-markets. The sub-markets are identified by the monopolist on the basis of differences in location and preferences of the buyers and their incomes.

Discrimination can also be practised on the basis of the use to which the commodity is put. The necessary conditions for price discrimination are:-

(i)   The market should be divisible into sub-markets on the basis of differences and price elasticity of demand.

(ii)   Switching of the product from the cheaper to the dealer sub-market should be costly or impracticable.

It is obvious that the objective of the monopolist to practise price discrimination is to increase his total revenues and his profits.

From the welfare angle (which is the subject of the next section of this lesson). A.C. Pigou in his book *The Economics of Welfare*, tried to associate price discrimination with the concept of consumers surplus. Price discrimination involves transfer of consumer's surplus from the buyers of the product which yields that surplus to the monopolist. Thus the usual case of price discrimination discussed in the textbooks, where broad sub-markets exist on the basis of differences in price elasticity of demand, involves an increase in the total revenues of the monopoly firm which entails the transfer of only part of the consumers surplus to the of the monopolist. Pigou called it *third-degree price discrimination*. If the monopolist can negotiate price discrimination on some bases by still further sub-dividing the markets, If would be referred to as *Second-degree price discrimination*. Here, although the transfer of surplus from consumers to the monopolist is greater, yet some surplus is still left with the buyers of

the products. The limiting case is that of *first-degree price discrimination*, where the monopolist negotiates with each customer individually a price which he would be prepared to pay rather than go without it. It is clear that in this case the whole of the consumer's surplus from the product would get transferred to the monopolist.

4.   Characteristics of Monopoly Pricing:-

In this section, we shall summarise the characteristics of monopoly pricing which emerge from the discussion in the preceding section. It would be clear that the only characteristics which monopoly enjoys in common with other market structures are:

(i)   the assumption of identical short run cost curves, and

(ii)   the same condition of equilibrium of firm, i.e. Producing output corresponding to which MC = MR, which prevails under all market forms.

Except the foregoing similarities between monopoly and other market conditions, the former enjoys some special characteristics which may be outlined below:-

(i)   Although, except under perfect competition, the demand curve that the firm faces in the market, which is its AR curve slope downwards from left to right, yet under monopoly the slope of the curve is sleeper then under monopolistic competition. And the same would be the case with the MR curve. A steep demand curve which implies that the demand in the market is relatively less elastic. They demand curve in this case shows less elastic demand because by reducing the price the monopolist cannot attract buyers from its rival firms as no rivals exists, unlike under monopolistic competition where anyone firm by reducing the price little can assure a relatively large increase in demand, which is the result of other forms buyer shifting to the product of the former. This steep or relatively less elastic demand curve (AR curve) has the implication that for any level of output the monopoly price would be comparatively high.

(ii)   Another characteristic of monopoly pricing relates to monopoly profits that this market situation generates. One feature of these prophets is that they belong to the category of abnormal or super-normal. They are abnormal because they arise, not in the form of payments for the necessary services of entrepreneurs, but due to (a) the price or average revenue being higher than the average cost of production and (b) there is no tendency for the price to come down to the level of average cost even in the long run. In so far as the AR curve is relatively less elastic because of absence of rival firms supplying close substitute, the abnormal profits tend to remain high. In other words, lack of competition enables the monopolist to earn high monopoly profits.

(iii)   A monopoly firm is a price maker in the sense that given the demand curve for its product, it can choose any level of output and set the price corresponding to it given by the market demand schedule. It will naturally choose that level of output which will maximise profits. It can also set different prices for different sets of consumers. The consumers will be divided for this purpose on the basis of their different locations, different uses to which they may put the product, or they are different intensities of need for the product, etc. Thus, price discrimination can be practiced on these bases. all of this mark southern monopoly firm as a price maker.

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(iv) Another characteristic of rising behaviour of a monopoly relates to the long run. By the very nature of the case, a monopoly enjoys the benefits of barriers to entry the rivals. These barriers to entry many be natural or contrived. Anna natural barrier may operate when the firm has full and complete control over one or more of the essential inputs. A water or gas supplying firm may own the only source of water or gas. Entry of potential rivals, therefore, gets naturally barred. But barriers to entry may also be man-made, in the form of a licence or patent to produce a product, or even in the form of economies of scale enjoyed by the monopoly, ensuring to it low cost of production which through price-cutting can be used as a means of keeping out any rival. Thus, in the long-run, there is no pressure on the firm to alter the size of its plant, or to vary its level of output or price. Even if it increases the size of the plant in view of the rise and demand, there is no pressure on the firm to operate that plant at its optimum capacity. Thus, it can be continue earning supernormal profits in the long-run.

(v) Due to the foregoing characteristics of monopolist's peculiar position, his price is usually higher, and output smaller than would prevail under competitive conditions. In the long-run, he is in a position to charge price which is higher than the minimum long-run average cost of production. Due to all these features, profits under monopoly are much higher than accruing to any firm under competition. The monopolist's control over is price or output level and much higher profits provide even the competitive firms sufficient incentives to form monopolies if opportunities arise to do so.

5.   Welfare Implications of Monopoly Pricing

Economics has a hard core around which the entire study of the subject revolves. That hard core consists of economic efficiency. If all the resources available are efficiently used, it would result in maximum production and, therefore, It would promote optimum welfare. But, for attaining that objective, it is necessary that all markets are perfectly competitive. One aspect of economic efficiency is what is called allocative efficiency. It connotes the distribution and redistribution of factors of production through the mechanism of markets operating under perfect competition so that allocative efficiency (i.e. production of optimum output with the available resources) is attained.

Monopoly implies negation of computation. Therefore, from the social angle, monopoly promotes inefficient allocation of resources and thus results in sub-optional level of output. This naturally has welfare implications for the society. We shall discuss below the welfare implications of monopoly at the micro level.

Before proceeding to discuss these adverse welfare effects of monopoly, let us first of all refer to some of the actual and alleged beneficial effects of this market situation.

First of all, it must be recognised that sometimes the size of the market for a good or service is relatively small so that a single large-sized firm, operating at its optimum level, can supply the entire output. The examples are: Supply of electricity, water, gas, etc. These are examples of *Public Utilities*. In such cases, having more than one firm may merely result in wastage of resources. It is, therefore, common to have such public utility under government control, which is aimed at prevention of establishment of multiple firms. A *natural monopoly* is the result and such monopolies are considered to be beneficial to the society.

Secondly, monopolies are also assumed to be necessary for promoting innovations (e.g. introduction of a new product or a new method of production). Defence of monopoly on this ground was made by Joseph Schumpeter in his book Capitalism, *Socialism and Democracy* (1942) where it was argued that perfect competition is inferior to monopoly in so far as the former does not promote innovation. Because under perfect competition each firm is able to sell whatever it produces and places in the market, there is no incentive for the firm to introduce cost-saving method of production, or a new product, or to explore a new market. On the other hand, Schumpeter argued, a monopoly is necessary for innovations because through a patent, the monopoly position guarantees sufficiently high profits to the single firm which innovates. Doing something new is not costless. The innovator needs sufficient incentive in the form of recovery office cost of innovation as well as reward of innovations in the shape of monopoly profits.

But it is recognised these days that their argument in favour of monopoly promoting innovations is more relevant to an oligopolistic situation than to monopoly. It is in the former case that there is a cut-throat competition among firms and there is, therefore, greater incentive for each firm to steal a march over its rivals through innovations. A monopoly, especially if it is not under threat of potential entry, will have little incentive for innovations.

Let us now discuss the *adverse effects* of monopoly on allocative efficiency, resource use, and general welfare of the society. These are taken up one by one below.

(i)   Monopoly and Economic Efficiency:- A firm attains economic efficiency when price = MC. In other words, the necessary condition for economic efficiency is that a firm expands its output up to the level where price = MC. You would notice that perfect competition is considered to be an efficient market structure precisely because for profit maximisation each firm logically expands its output up to the level where MC = MR (=AR = Price). This, however, does not happen under monopoly, which is why monopoly is considered to be an economically inefficient market structure. The differences in the pricing behaviour of firms under the two market situations of monopoly and perfect competition have welfare implications which can be shown diagrammatically below.

In Fig. 6.2. above, AR and MR are the average and marginal revenue curves, respectively, of the monopoly firm. MC is its marginal cost curve. Given these curves, the firm maximise its profits where MC = MR and consequently a price Opm is determined.

Now let us suppose that instead of being a monopoly, the firm is operating under perfect competition. Here, the rule for the equilibrium of the firm is that it will produce that output where the MC curve cuts its demand curve (or AR curve) from below. This happens at point B. The firm maximises its profits by producing Oqx output at Opc price. Now if we compare two prices, viz. the one under monopoly and that under perfect competition, it is noted that the price under perfect competition Opc = MC, but the price under monopoly Opm is greater than MC. Therefore, in terms of our definition of economic inefficiency (i.e. price being greater than MC) monopoly as a market situation is inefficient. Compared to perfect competition monopoly price is higher (Opm>Opc), while quantity produced is lower (Oqm<Oqc). It amounts to saying that under monopoly, consumers are made to pay higher price, but for a lower quantity supplied. This shows allocative inefficiency of monopoly, since if

the resources used under this market situation where to be shifted to firms producing under perfect competition, quantity supplied would rise in price would be lower. Thus, allocative efficiency would improve. Thereby, the society would stand to gain.

(ii)   Monopoly and Technical Efficiency:- Technical efficiency is a situation where a firm produces each unit of its output at minimum cost of production. It would be noted that perfect competition promotes technical efficiency because it forces each firm to attain its optimum size in the long run. At this optimum size, the firm's AR = MR curve (or its demand curve) is a tangent to its LAC curve. This is shown diagrammatically below and is compared with the monopoly situation:-
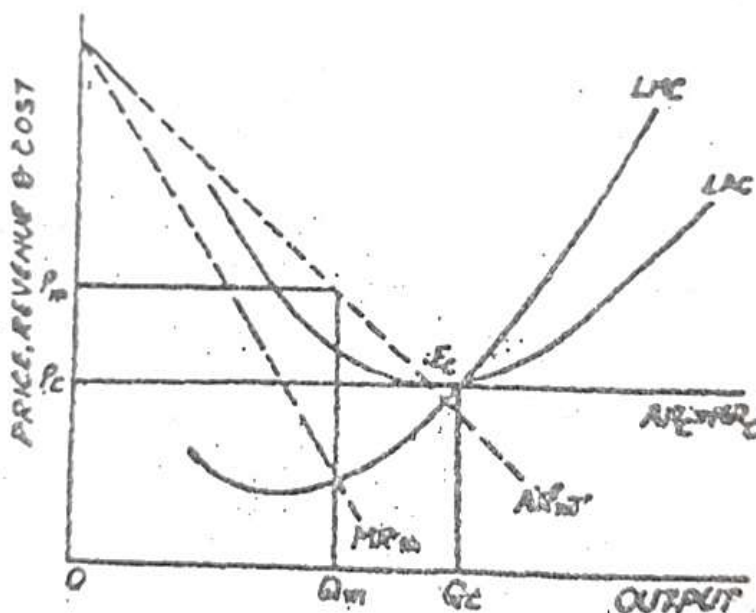
FIG. 6.3

In this figure, ARc = MRc are the average and marginal revenue curves, respectively, of the firm operating under perfect competition. ARm and MRm are the average and marginal revenue curves of the monopolist. Assuming that the LAC curve is identical under the two market situations, it would be noted that in the long run under perfect competition the entry of new forms would force the price downwards till it reaches the Opc level. Here every firm would be earning only a normal profit and entry of new firms would stop. The ARc = MRc curve would be a tangent to the LAC at Ec point, thus resulting in an optimum output equal to OQc and a price equal to OPc. The OQc output would be produced at a point where the minimum LAC. Thus all the firms under perfect competition would attain technical efficiency as defined above.

On the other hand, given the ARm and MRm monopoly firm's equilibrium takes place when output is OQm where LMC = MRm and the corresponding monopoly price is OPm. The price is much higher than the minimum LAC (i.e. QcEc). In fact, the downward sloping ARm

cannot be a tangent to the LAC at point Ec. Therefore, the monopoly is bound to remain technically inefficient. There is no logic inherent in the analysis of monopoly pricing which can ensure a fall in monopoly price down to the LAC level. Therefore, this logic can only ensure that monopoly remains a technically inefficient market structure. This technical inefficiency implies that monopoly firm operates in such a way that it involves wastage of resources. It is desirable that when a particular plant size is set up it should be fully utilised. But a monopolist does not do so resulting in a less than optimal employment of resources. It may be noted in the diagram that LAC and LMC are the cost curves pertaining to the plant that has been established. In order to make the best or the optimum use of this plant, a producer is required to expand his output up to the OQc level, Which corresponds to the minimum cost on the LAC curve. However, the monopolist produces a lower output, OQm which amounts to making a less than optimal use of the plant. This results in a wastage of resources available. In other words, a monopoly fails to achieve technical efficiency which is a welfare loss to the society.

One can, however, think of a situation where a monopoly is forced to charge the price equal to its minimum LAC. This is a case where a monopoly faces a serious threat of entry from potential rivals because the existing firm may be earning high monopoly profits. In order to prevent entry, one option open to the monopolist is to charge just the price which will discourage entry of new firms. This is called a *limit price*. This price would be the one which is equal to in minimum LAC. But in order to be equal to the minimum LAC (corresponding to the point Ec in Fig. 2) the monopolist will have to ensure a shift in his ARm just so much that it passes through the point Ec. Das can be done through advertisement or door-delivery type of non-price incentive to the customer consumers so that demand for the product expands and, consequently, the ARm curve shifts towards the right. When it just passes through the Ec point the firm could stabilise the buyer-enticing device at that price level, produce OQc output and sell it at the limit price QcEc = OPc. It may be added here that the full theory of limit pricing shall be discussed in the following Lesson. By using the limit price and thereby keeping out the potential rivals the monopoly would become technically efficient. But as is clear this would be a rather rare case.

(iii)   **Distributional Effects of Monopoly:-** The analysis of distributional effects is important because these involve robbing Peter and paying Paul. Transfer of welfare from one class of people to another takes place because of the inefficient operation of a particular structure. In the case of monopoly this can be analysed under two situations, viz. when the monopolist charges a uniform price and when he practices discrimination.

Let us start with the first case.

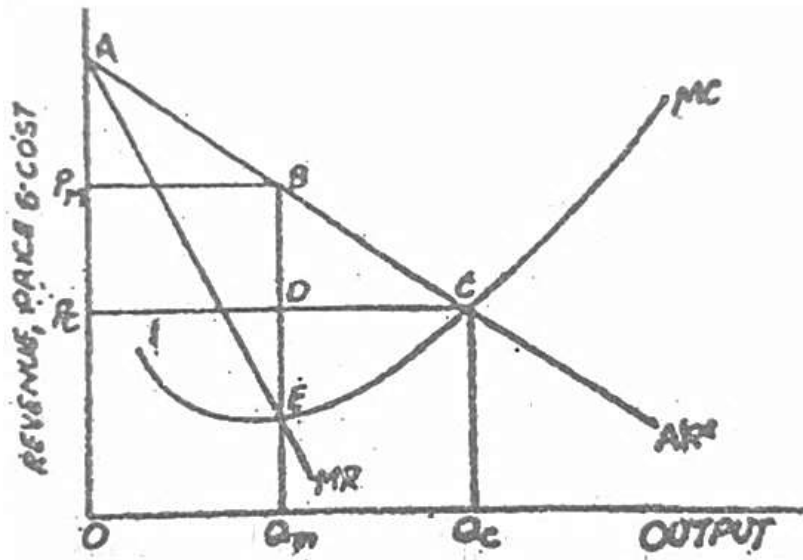Look at the below (Fig. 6.4) which is almost identical to Fig. 6.3.

FIG. 6.4

Monopoly here is assumed to charge a single price OPm. Let us compare the position under perfect competition and monopoly here. If perfect competition were to prevail the consumers surplus would be APcC (i.e. the difference between total utility derived, which is the area AOQcC, lying under the demand curve, AR, and the utility sacrificed shown by area OQCPc in the form of price paid). But if monopoly prevails, the consumer's surplus gets reduced to APmB. If perfect competition is replaced by monopoly, the consumer's surplus would partly get transferred to the monopolist as his profit. This distributional effect is measured in Fig 6.4 by the rectangle PmBDPc. Besides this distributional effect, there is also a loss of to the society, as a whole (and in fact to different classes of society, so that also becomes a distributional effect) which is measured in Fig. 6.4 by the area BEC. This area comprises of two components, BDC and DEC. The former is a dead loss to the consumers in their surplus because the monopoly charges a higher price and supplies a lower output. If its place were taken by perfect competition, merely because price falls (from Pm to Pc) and output rises (from Qm to Qc) there would be a rise in consumer's surplus by the area BDC. This would be apart from PmBDPc which gets transferred from the consumers to the monopolists.

Then there is the area DEC. Suppose in place of monopoly now perfect competition prevails. This same firm under perfect competition would now produce an output equal to OQc and thereby its profits rise by the area DEC. This happens because DCQcQm is the increase in total revenue, while ECQcQm the area below the MC curve is the increase in total cost. DCQcQm – ECQcQm = DEC. This is the profit which the firms under perfect competition would earn. If in the place of perfect competition now monopoly emerges, this profit will not be available. But as monopoly emerges, the firms are prevented from earning DEC profit. Besides consumer's surplus equal to PmBDPc would now be appropriated by the monopolist as a part of his profit.

Let us next take up the case of a monopoly which practices price discrimination. As has been noted earlier in this lesson, there are degrees of price discrimination, usually

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referred to as the first, second and third degree price discrimination depending upon how much consumer's surplus is appropriated by the monopolist. Let us take a moderate degree, the second degree, price discrimination, where the monopoly sub-divides markets on some basis and sets the price in such a way that while some consumer's surplus left with the consumers the rest is appropriated by him as his profits. For this, we look at Fig. 6.5 drawn below.
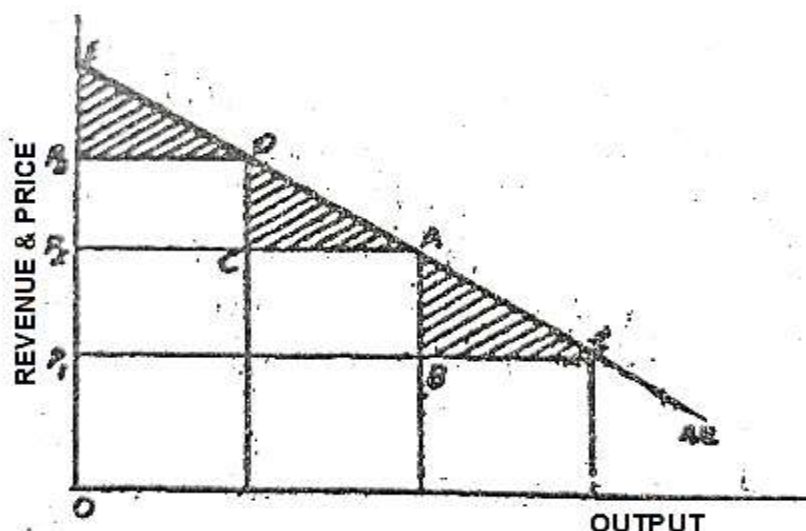

FIG. 6.5

Suppose initially, the monopolist was charging a uniform price P1. Add this price the consumers were enjoying a surplus equal to the area P1EC. Now the monopolist decides to practice price discrimination and retains the price P1 for one class of consumers but resist to P2 for another class. Now the distributional effects start operating. The category of consumer's paying P1 will enjoy consumer's surplus equal to only ABC, those paying P2 will get a consumer's surplus equal to EP2A and the rectangle P1BAP2 Shows the transfer of consumer's surplus to the monopolist in the form of increase in his revenues. Further assume that P2 is retained as the price for a particular class of consumers while higher price P3 is charged from the third category of buyers of the good. Now, the consumer's surplus for the second category falls to DCA, that enjoyed by the third category equals the area EP3D and rest P3DCP2 gets transferred to the monopolist is the form of increase in his revenues. Thus, before price discrimination, the total consumer's surplus was equal to the area EP1C, but after price discrimination it falls to ABC + DCA + EP3D shown by the shaded area, while the rest equal to its rectangles P2ABP1 and P3DVP2 gets transferred to the monopolist in the form of rise in his total revenues. The significance of these distributional effects from the point of view of social welfare can be recognised more satisfactorily if we identify the monopolist with the richer sections of society (the capitalists) and the consumers with the poorer sections (say, the workers). Price discrimination results in welfare (utility or income) being transferred from the poorer to the richer sections of society. if the society values the welfare of the poorer classes more than that of the richer classes price discrimination obviously leads to fall in over-all social welfare.

(iv) The Dynamic Effects of Monopoly:- The foregoing are the effects of monopoly in a static situation where no change in time is involved and other things are assumed to be constrained. This is the usual assumption from a microeconomic situation. But one can take an evolving macroeconomic situation there any single production unit like a monopoly can have certain dynamic effects. These effects will attract more attention especially in the developing country is where a process of economic development may be underway. This process aims at promotion of the welfare of society and especially at increasing welfare over time.

Now, looking at the operation of monopolistic enterprises in this dynamic setting, One notice is that monopolies may threat *technological change* because a monopolist, in the absence of competition, feels no pressure for bringing about such a change in his production methods. While this is the general impression, it is also sometimes argued that monopolies are organizations large in size and are therefore in a better position to engage in R and D (research and development) activities, through which technological progress takes place. On this issue there is no unanimity of opinion.

Besides, if a monopoly uses videos means to prevent entry of new firms, it slows does the process of *capital formation.* Coupled with this is the argument that if entry successfully prevented, a monopoly throttles the process of entrepreneurial development. Further, it may also be argued that monopoly, unperturbed by competition of rival firms, may not feel the necessity of improving the quality of products. All the foregoing and dynamic adverse effects of monopoly.

Exercise

1.   Discuss the monopoly pricing decisions under short run.

2.   What are the characteristics of monopoly pricing?

6.   Summary

The present lesson was, thus, devoted to a discussion of the main features of monopoly pricing and the welfare implications of the pricing-output behaviour of a monopoly. While drawing out these implications, we compared the pricing-output behaviour of a monopoly firm with that of a firm operating under perfect competition. We noted that perfect competition is considered to be an ideal market situation for the reason that it promotes allocational and technic-economic efficiency and it does not have adverse distributional effects. Monopoly negates all these benefits to the society. It has adverse effects on social welfare.

In the following Lesson, we shall deal with the theory of Limit Pricing, which is an off-shoot of the theory of pricing under monopoly and oligopoly.

7.   Glossary

- **Allocative Efficiency:** Allocative Efficiency occurs when there is an optional distribution of goods and services taking into account consumer's preferences.

- **Economic Efficiency:** Economic Efficiency implies an economic state in which every resource is optimally allocated to serve each individual or entity in the best way while minimizing waste and inefficiency.

- **Limit Pricing:** Limit Pricing is a pricing strategy a monopolist may use to discourage entry.

- **Price Discrimination:** The action of selling the same product at different prices to different buyers, in order to maximize sales and profits.

8. Answers to Self Check Exercise

Answer to Q1 Refer to Section 3.

Answer to Q2 Refer to Section 4.

9. References/Suggested Readings

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10. Terminal Questions

Q1.   How a profit maximisation monopoly chooses output and price?

Q2.   Discuss the welfare implications of monopoly pricing.

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BAIN'S THEORY OF LIMIT PRICING

STRUCTURE

1.   Introduction

The theory of limit pricing focuses on the question of entry of new firms into a market of industry. The question did not receive must attention until the mid-1950s. The traditional microeconomics divided market structures into three major firms, viz. perfect competition, monopolistic competition and monopoly. So far as the first two market forms were concerned, the traditional theory explicitly assumed that in the long run new firms do not enter an industry if the existing firms are earning super-normal profits. In the case of monopoly, the traditional theory explicitly assumed entry of new firms to be completely barred so that the monopoly could continue earning super-normal profits even in the long-run.

However, the modern theory of price-output behaviour of firms takes notice of only actual entry of firms into an industry, but also the perception of threat of potential entry (i.e. likelihood of the entry of new firms). The existing firms, while setting their prices and thus aiming at a certain rate of profit, must take into account the possibility of the entry of new rivals into their market if the price set and the consequent profit accruing to them was too high. Although most economists before 1950s had ignored the impact of the threat of potential entry on the pricing-output behaviour of existing firms, yet some of them did take notice of it. For example, J.B. Clark, writing in 1912, had noted that, "The mill that has never been built is already a power in the market."

J.S. Bain brought the consideration of threat of potential entry into the analysis of price-output behaviour of firms, especially, the operating in an oligopolistic market, more than anyone else in the mid-1950s. Bain especially addressed himself to the empirically observed fact that in the long run firms usually do not set a price which would maximise their revenue,

nor does the price fall to the level of long-run average cost (LAC). The price was set somewhere between the high monopoly price and the low LAC. Bain's explanation was in terms of the difference between actual entry and potential entry. The actual price set by existing firms was nearer to, but less than, the monopoly price because of threat of potential entry, but it did not fall to the level of LAC because of barriers to actual entry. Thus, the actual price was influenced both by actual a well as potential entry. The existing firms do not set a monopoly price (even when they are in a position to do so). The price that they set is the limit price or entry-preventing price, which is the highest price that they can charge without including entry or a price low enough to prevent entry of potential rivals.

2. Learning Objectives

Upon completion of this lesson, you will have a comprehensive understanding of:-

- Understand Bain's Limit Pricing theory

- Understand Bain's Models of Scale-Barrier

3. Bain's Limit Pricing Theory

Bain first of all, took up this question in an article in American Economic Review, 1949. Subsequently, he developed the Limit-Pricing Theory more fully Ina book, Barriers to New Competition in 1956. We shall discuss the theory in some detail below.

It is clear that the limit price in the entry preventing price. It is set at such a level that a potential entrant will not find it worth his while to enter an industry because the price is being charged by the existing firm or firms will ensure to the former either only a normal profit or even may entail a loss.

Limit-pricing theory is discussed primarily in their context of an oligopolistic marker although the theory is equally well studied to analyse pricing in a monopolistic market.

Bain distinguishes between actual competition among the existing firms and potential competition which arises out of a threat of potential entry of new firms. The theory of oligopoly usually discusses the characteristics of interdependence only among existing firms. But Bain's theory implies that there is interdependence between the existing firms as well as the potential entrants. So potential competition also affects the pricing-output behaviour of the existing firms. Bain's theory is crucially dependent on his concept of entry and the barriers that exist to entry in an industry. We discuss them in some detail below.

(a) Concept of Entry and Entry Barriers

Bain's theory primarily refers to the establishment of a new firm and its building of new production capacity in an industry as constituting entry. The takeover of an existing firm by a new owner or the addiction of this industries product to its other products buy a firm belonging to another industry are excluded from the definition of entry. Thus, in this theory, entry is a long-run phenomenon which takes place over a period long enough to enable a new firm to be established. This period would depend upon the gestation lag (the time that lapses between the start of construction of individual project and the beginning of production

by it) involved in establishing the new firm. this would also determine the difference between the limit priced (PL), which the existing firm can charge without the fear of entry of new firms, and the price that would prevail under perfect competition (Pc). It is clear the Pc = LAC. So the analysis of barriers to entry is necessary because it shows by how much the existing firms can raise the long run price over and above their minimum long run average cost (LAC) without attracting entry of new firms. The stronger barriers, the greater the gap between PL and Pc, the latter being equal to LAC.

Bain considers four barriers to entry, which are discussed below.

(i)   Product-differentiation or Preference Barrier

Product differentiation has formed a part of the traditional theory of monopolistic competition since the days of E.H. Chamberlin and of the theory of oligopoly later. However, the traditional theory ignored the role of product differentiation in preventing entry of new firms, although such a role is quite of obvious. Product differentiation creates preferences in the minds of consumers for particular brands of a product. Any new brand put out into the market buy a new firm will have to content with such a preference barrier. Those preferring existing brands cannot be easily coaxed into buying an entirely new brand. The existing firms thus enjoy a goodwill in the market due to the strong consumer preferences for their products and such preferences are created through product differentiation. The new entrant to an industry can cooks the buyers into buying his product either by keeping the price lower than that of the rival brands, or by restoring to an advertisement blitz entailing heavy selling cost of the new firm will have to think many times before entering into the market and making niche for itself in it through price cutting and costly advertisement in the very beginning of the life. So the product differentiation or preference barrier to entry acts very strongly.

Bain referred to the results of his empirical study conducted among twenty industries, in his above mentioned book. In nearly half the number of these industries, he found the product differentiation barrier for entry to be moderate to very strong. Such a result is not surprising in view of the fact that Bain defines entry only in terms of setting up of completely new firms in usually an oligopolistic market. However, critics of Bain point out that he has unnecessarily and rather unrealistically limited his definition of entry to only the establishment of new firms. Rather, the typical case of entry may be in the form of an already established form either within the same industry expanding its output or a firm in another industry adding a new commodity to its product-mix. That firm may already have build a strong goodwill for itself. Consider, for example, in India, the Tata's conglomerate already very well established in the production of steel, watches, detergent, salt, etc., now deciding to enter the car production industry. In the last-mentioned industry, although the Tatas are a new entrant, yet consumer preference or product differentiation barrier will not act very strongly against it. Another criticism of Bain's analysis of product differentiation barrier can be that it can add in fact has in the past acted as a stimulant to entry of new firms. When firms can always win over new consumers to buy their brand of the product, there is always room for more and more entrants. Instead of making inroads into the market share of the already established firms, the new entrant can cater to the tastes and requirements of an entirely new set of consumers especially when the incomes are rising and thus markets are expanding. The main weapon of the new entrant in such a situation will be market innovation in the form of a

variety of tactics adopted by firms in the market through publicity, advertisement and giving away prices or free gifts etc.

(ii)   Absolute Cost Advantage Barrier

Several circumstances can be thought of due to which the already established firms in an industry would enjoy a cost advantage over the new entrant. these favourable circumstances for the existing firms and, therefore, conditions causing a cost disadvantage for the potential entrant can be: the already skilled and trained managerial team of the existing firms, lower costs of raw materials, finance and transportation for them due to their prior arrangements with the suppliers and creditors, benefits of internal financing available to the already established firms, and possible benefits of backward or forward integration accruing to them, etc. If the existing forms are enjoying most or all of these benefits, these would translate into a formidable absolute cost advantage to them but into an absolute cost barrier to the potential entrant. How does absolute barrier to entry will operate can be shown with the help of Fig 7.1 given below.
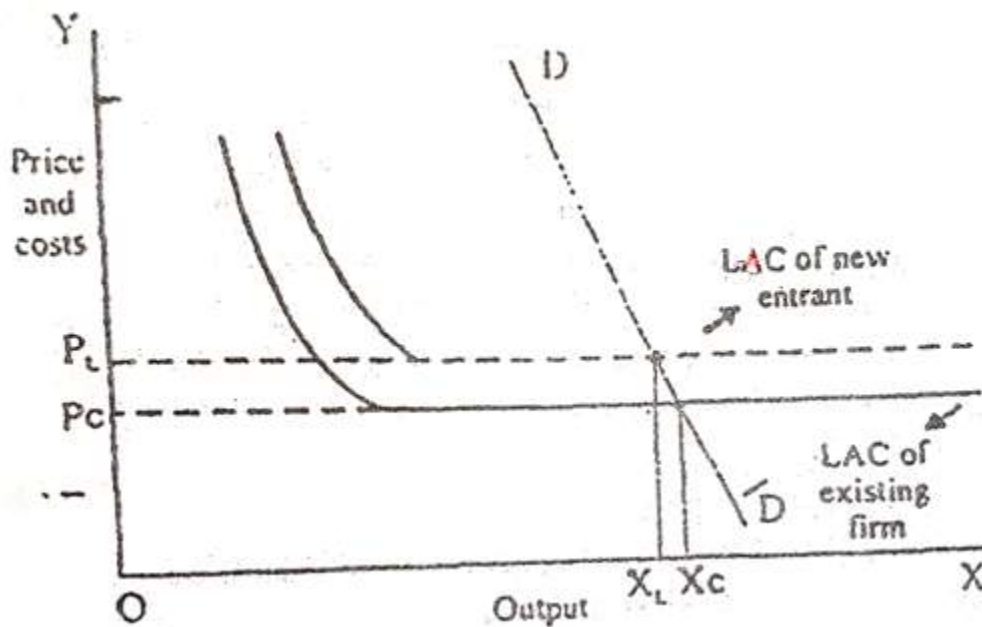

FIG. 7.1

It has been shown in the figure above that if the existing firms enjoy an absolute cost advantage over the new entrant, the LAC of the latter will lie, uniformally above that of the former. The existing firms, left undisturbed by new entry, would produce OXc output corresponding to which OPc, the competitive price, would be equal to their LAC. However, if a new firm enters the industry, It will share the market with the existing firms and supply and output equal to XLXc, but it cannot supply this output at the OPc price because it will not cover its own firms. So an absolute cost advantage of the existing firms will act as a barrier to the entry of new firms.

From the empirical study, Bain found the absolute cost barrier to be operating in less number of firms than the product differentiation barrier. The former was really operative where the existing firms had taken out a patent or were controlling key resources.

It has been noted that it is only in the case of the entry of entirely new firms (which is how entry has been defined by Bain) that absolute cost barrier may become a really serious impediment for the entrant. If, however, entry is defined to include those already established firms in other industries which now start producing a new product, overcoming this barrier becomes easy. Such firms already have a team of trained managers, and they also have access to technical know-how and other resources such as finance, raw materials, etc.

Even an entirely new entrant may also enjoy a cost advantage over the existing firms in that sometimes the latter are saddled with old obsolete plants whereas the former can install the latest plant available. In this case the new entrant will enjoy a cause and usually advantage over the existing firms. Besides, sometimes, the existing plants are constrained by either having chosen a wrong production location from the very start, or the location turns to their disadvantages with the passage of time due to overcrowding, pollution, rising cost of living and inputs at its existing location. The new entrant is at a comparative advantage in this respect because it can choose a better location. So, in the above-mentioned cases, the absolute cost barrier to entry will be inoperative.

(iii) Heavy Initial Capital Requirements as a Barrier

The capital initially required for setting up an enterprise depends upon the size and the kind of plant and the technology that is going to be used. An industrial enterprise has usually two financial sources externally available to it, viz. borrowing from a financial institution and the share market. If the initial capital requirements are heavy, no creditor would be prepared to finance the industrial project since it has no track record on the backing of which it can approach to financier. Same is the case of the share market where nobody would take up the shares of a company which is yet to be born. If then, the new entrant is able to meet his initial capital requirement by somehow borrowing at a high rate of interest, it becomes an absolute cost disadvantage barrier, as discussed earlier. But capital may not be available to the new entrant at any rate of interest, especially when initial capital requirements are quite heavy. Then it becomes an absolute entry barrier.

From the empirical study, Bain found the initial capital requirement barrier to be operative in nearly half of the industries of his sample. Out of these industries also, he found it to be strong barrier in nearly 50% of the cases, while in the rest 50% it was rather moderate.

Critics point out that the heavy initial capital requirement barrier operates only in the case of the new firms, which alone have been considered for the analysis of entry barriers by Bain. If, however, a new firm is set up in a particular industry buy a firm already existing in another industry, the barrier does not operate. In India, for example, if a successful entrepreneur like the Birlas want to start production of say, cars, it will not be difficult for them to approach the capital market to meet initial capital requirements. Besides, In the case of industrial conglomerates (which have their firms: operating in several industries), the existing firms are made to finance a new firm out of their internal sources.

(iv)   Economies of Scale Barrier

The traditional theory has distinguished between the real and pecuniary economies of scale. The former result in raising factory productivity (i.e. enable firms to extract more output per unit of factors inputs), while the latter accrue from fall in factor prices, as the scale of production is increased. The real economies of scale are the combined result of the technical (use of specialised machinery available to large firms), managerial (creation of a managerial team by large firm, but the size of the team does not necessarily rise with increase in output) and labour economies (arising from division of labour practiced by large firms).

Pecuniary economies of scale, on the other hand, accrue to a large firm because of its bulk operations (i.e. buying raw material, transporting goods and borrowing funds on a larger scale). These bulk operations enable the firm to negotiate, with its suppliers and creditors, terms which are favourable to it.

These economies of scale, when available to the existing firms act as a formidable barrier to the new entrant because the latter has to start operations on a modest scale. In the discussion of the Limit-Pricing Theory, Bain devotes considerable attention to this the scale-barrier. Various models are developed by him, each corresponding to the different expectations of the new entrant about the reactions and behaviour patterns of the existing firms, post-entry (i.e. after the former enters the industry).

4.   Bain's Models of Scale-Barrier

In order to develop these models, Bain assumes that the potential entrant to an industry, where a scale-barrier exists, will make various conjectures about the possible reactions and behaviour patterns of the existing firms, post-entry. Bain considers six possible reactions of the existing firms, out of which three are most realistic and thus from the basis of his models, while they remaining three possible reactions being rather unrealistic or ignored by him. The three more realistic conjectures made by the potential entrant about the possible reactions of the existing firms post-entry are the following:-

(a)   The existing firms will not change the price.

(b)   They will keep their output unchanged at pre-entry level.

(c)   They will partly reduce their output and will partly allow the price to fall.

Assumptions of the Model:-

The following assumptions underlie Bain's models:

(a)   For each industry there exists a minimum optimal scale of plant. This minimum optimal scale of plant corresponds to that point on the firm's LAC curve where it reaches its lowest point i.e. where all the economies of scale are being exploited to the maximum.

(b)   The LAC curve is assumed to be L-shaped and is the same for all the forms of an industry.

(c)   The market demand curve is known to all the firms, existing as well as potential entrants.

(d)   All firms produce broadly and identical product so that the same price will prevail in the market. This assumption is made so as to rule out or eliminate the product differentiation barrier and thus deal with the pure scale barrier.

(e)   All firms are assumed to be of in equal size so that each of them enjoys an equal market share. This is assumed to be true of the new entrant as well.

(f)   Not only do all the firms enjoy equal market share at a given price, but this is assumed to be so at all prices. In other words, no matter what the market price, the share of each firm in the market remains equal to that of other and it remains unchanged.
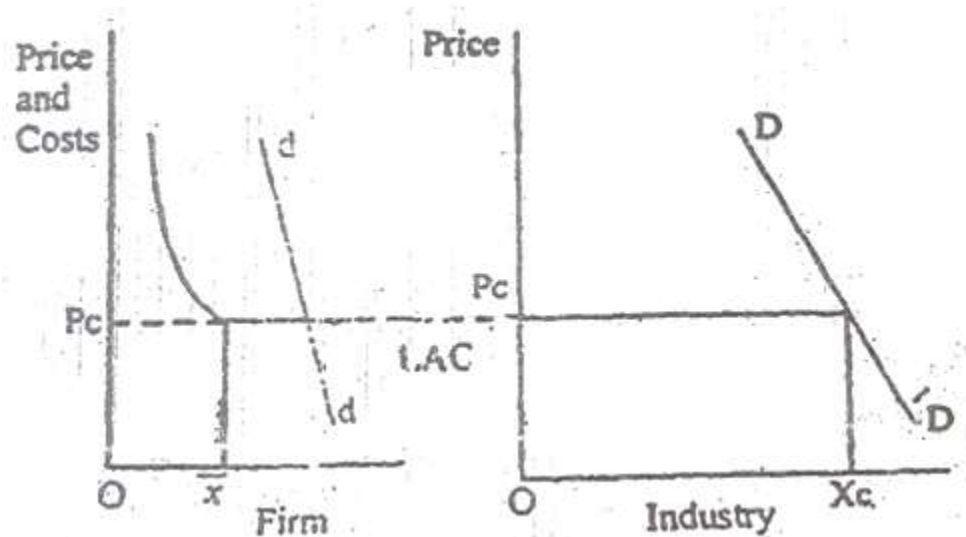
FIG. 7.2

Fig. 7.2 above incorporates most of the assumptions of Bain's model of Limit-Pricing Theory in the context of the scale barrier faced by a new entrant to an industry. The left-hand side diagram depicts the position of anyone firm while that on the right-side shows the position of the industry comprising all the firms. It would be noted that d'd is the demand curve faced by anyone firm, whether already existing or the new entrant, and the D'D is the aggregate demand curve of the industry. The LAC curve is the typical L-shaped long run average cost curve. Pc is the long-run competitive price which would ensure only normal profits to the firms since Pc = minimum LAC. For each firm, x is the minimum optimal scale of plant. The advantage of the existing firms is that they will have already exceeded x but the new entrant will have to attain at the very start x output in order to overcome the scale barrier. At Pc competitive price, all the firms would be producing at an aggregate output Xc.

As noted earlier, Bain's Limit-Pricing Theory assumes that a potential threat to an industry, before entering, can make various conjectures about how the existing firms will react, after entry. Besides on these alternative conjectures, Bain develops four models, which may be discussed below:-

Model I: Conjecture that Price will remain constant at pre-entry level.

Under this model, assume that the potential entrant expects that the existing firms will keep price constant at the pre-entry level and that they will permit the former to secure any market share of output at that price. The implication of this conjecture is that when the existing firms are expected to thus accommodate the new entrant, given the market demand DID, The market share of each of them will fall. What that means is that If D'D remains constant, and so does market price remain unchanged at the pre-entry level the total amount that will be purchased at that price will be the same as before so that the post-entry when of new firm starts selling in the market, it will cut this year of the existing firms in their sales by that amount.

If the foregoing is the conjecture of the new entrant about the possible reaction of the existing firms, as the former prepares to enter the industry, what will be the actual reaction of the existing firms? They will call in fact try to prevent the entry by setting a limit price. Recall the definition of limit-price as given at the beginning of this Lesson. This is the entry-preventing price, or a price which makes entry unattractive to the firms outside the industry. In other words, the existing firms will set the price above or below the competitive price, Pc, depending upon how secure is their position in the industry against the threat of entry in view of the preceding barriers to entry. So we are well they set the price, so as to make entry unattractive to the potential entrant. For arriving at this price, Bain introduced the concept of "the condition of entry", this being the margin by which the existing firms can raise their price above Pc without attracting entry. This is shown by the equation

$$E = \frac{PL - Pc}{Pc}$$

Where E is the premium (or margin) which existing firms can enjoy by setting the price above Pc because of the entry-barriers and PL is the limit price as defined earlier.

Now, solving for PL, we have

Pc(E) = PL – Pc

or   Pc(e) – Pc = PL

or   PL = Pc(E) – 1

or   PL = Pc (1+E)

This last equation shows that the existing firms will set a limit price, PL, which will exceed the competitive price, Pc, by an amount, E, without attracting entry. The size of E (i.e. the excess of PL over Pc), according to Bain, will depend on four factors: (i) The initial share of market (d'd) of the entrance relative to the minimum optimal size of plant (x); (ii) the member of the firms and that industry; (iii) the steepness of the LAC curve; and (iv) The elasticity of demand for the product in question. Let us take each one of these four factors one by one.

(i) The initial size of d'd relative to x:- If the new entrant is able to establish a plant without output or share of market equal to or greater than x there will be no scale barrier. The barrier will operate only if the new entrant's share in the market (i.e. d'd) is less than x. Give x, the smaller d'd the larger will be E (i.e. excess of PL or Pc). This is shown in the diagram below:
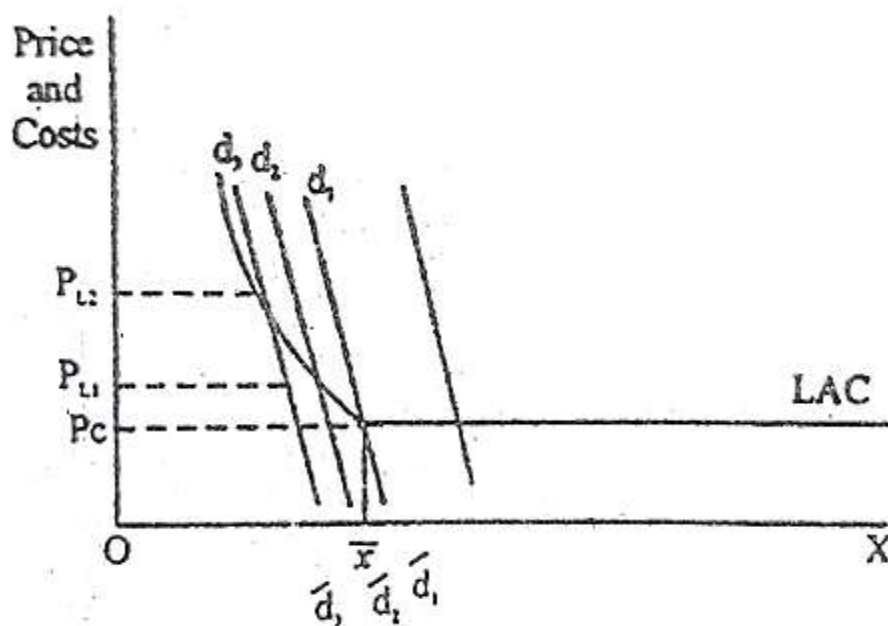

FIG. 7.3

In Fig. 7.3., X shows the minimum optimal scale of output. If the d'd' (showing new entrant's share in total demand) is positioned at d1'd1 or to its right, the scale barrier will not be operative and the existing firms will not be able to set any limit or entry-preventing price. If, however, the new entrant's market share, shown by d'd1 is to the left of d1'd1, such a d2'd2 or d3'd3, the existing firms will settle limit price such as PL1 or PL2 and prevent entry. It is clear that E, the gap between Pc and PL, will be negatively related to the new entrant's initial market share shown by the location of d'd.

(ii)   The number of existing firms in the industry:- This model argues that if the number of firms already existing in this industry is large (i.e. the industry is already crowded), the limit price will be high. Large number of existing firms and shores that each of them will enjoy a small market share, a share which may in fact be less than x. Due to the assumption of these models (as given earlier in this Lesson) that all firms, including the new entrant, post-entry, will also have a demand less than x. Suppose the new entrant faces a demand curve d2'd2 shown in Fig. 7.3 above. In that event, the existing firms will set PL1 limit-price and thus prevent entry. The entry will be discouraged by the fact that the new entrant will be failed with the prospect of having to operate his plant at less than optimal scale. The greater the number of the firms in the industry, the more below X the share of each in total market and the higher would be the limit price.

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(iii) The steepness of the LAC curve:- As we have noting so far, the Limit-Pricing Theory assumes the firm's LAC curve to be L-shaped. Thus, initially the long-run average cost declines as the scale of production increases thanks to the accrual of economies of scale. The question here is: how fast does the long-run average cost decline? In other words, how steep is the LAC curve before X is reached? According to Bain, the faster the decline in LAC or steeper the LAC curve, the greater the premium that existing firms will enjoy, and the higher will the limit-price be. This is shown in figure 7.4 ahead.

In the figure, two alternative segments of the falling part of LAC curve have been shown, the LAC1 and LAC2. It would be noted that, with a given demand curve for the new entrant being d'd, the limit price would be PL2 in case of the steeper LAC2, but it would be lower at PL1 when the LAC curve is less steep.
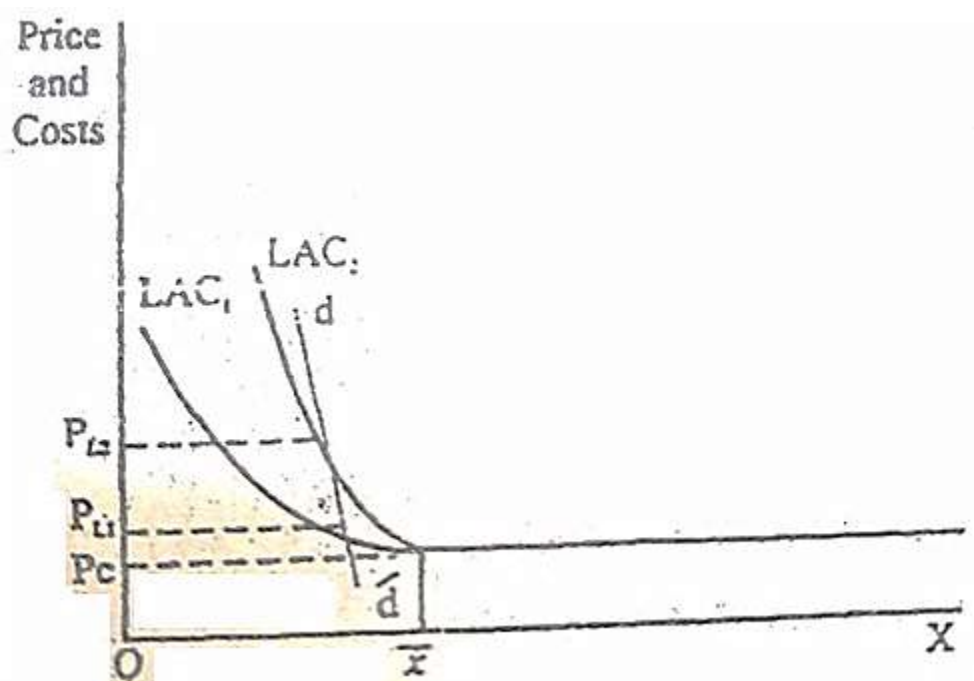
FIG. 7.4

The gap between Pc, the competitive price and P1, the limit-price being the entry gap, it is clear that the steeper the LAC curve, the greater the entry gap.

(iv) The elasticity of firm's demand curve:- It will be seen in Fig 7.5 below that the limit-price to prevent entry will be higher, the more elastic the demand curve that the new entrant is expected to face.

In Fig. 7.5, two demand curves that the new entrants expected to face in the market are shown. Out of these d1'd1 is less elastic, while d2'd2 is more elastic. The limit price corresponding to the more elastic demand curve, PL2, is higher than the limit-price (PL1) corresponding to the less elastic demand curve.
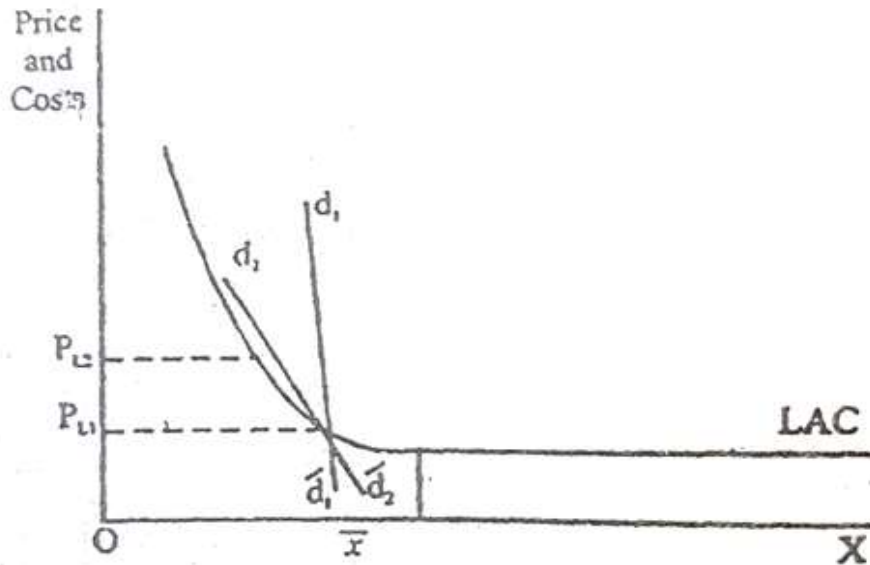
81

FIG. 7.5

Now is the time to sum up the discussion under Model I. The Model assumes that the new entrant makes conjecture about the possible reaction about the response of the existing firms to his entry. He expects them to retain their price at the pre-entry level. In such an event if he plans an output equal to work greater than x, there will be no entry barrier. There will, thus, be no limit-price.

If, however, demand for the product of the new entrants such that his market share a smaller than x, the scale-barrier does into play and the limit-price (i.e. a price higher than Pc and LAC) will be more, the larger the number of firms in the industry, the steeper the LAC, the greater the elasticity of demand, and the shorter the d'd compared to x.

Model II: Conjecture that the existing Firms will not change their Output level.

Under his second model, Bain assumes a situation where the new entrant to an industry is expecting that upon his entry, the existing firms will not change their output but as a consequence of his entry, as the industry output rises, the price will fall. The existing firms, on the other hand, are hoping that entry will not take place if the price falls below the LAC. This model also assumes that upon entry, the new firm will establish a minimum plant size to produce x.

Given these assumptions this scale-barrier will become operative. The existing firms will charge limit-price to prevent entry, given by the equal referred to earlier in this lesson, viz.

$$PL = Pc (1+E)$$

What will be the level of PL, or in other words, what will be the size of the gap between Pc and PL i.e. E? The premium (E) over and above Pc, which the existing firms can enjoy will depend on: (i) the minimum optimal scale, x; (ii) the size of Xc, i.e. the size of total supply at competitive price, Pc; (iii) the elasticity of demand; and (iv) the number of established firms in the industry.

Taking each of these determinants of the limit price or E, one by one, it is clear that the larger the X, the stronger the entry-barrier and therefore, greater the ability of the existing firms to charge higher limit-price. Then, the larger the market size, Xc, the greater the capacity of the industry to accommodate new firms and, therefore, smaller the ability of the existing firms to increase price above Pc so as to prevent entry. Thus, Xc and PL are negatively related. So is the case with price elasticity of demand. The more elastic the demand the less the capacity of existing firms to charge a price higher than Pc in order to prevent entry. On the other hand, the number of existing firms in the industry is positively related to the size of limit-price, i.e. the larger the number of existing firms in the industry, the greater their capacity to bar entry by raising price above Pc.

Thus, according to Model II, the limit price will be higher, the larger x and the number of existing firms in the industry, but smaller Xc and elasticity of demand.

Model III: Conjecture that existing Firms will partly reduce Output and partly led Price to fall

If this is the assumption of the potential entrant about the possible reaction of existing firms, than the former expects the latter only to partially accommodate him in the industry. This is the intermediate case between Model I and Model II, and the Bain expects it to be the more probable reaction of the existing firms to any threat of entry. Since the firms reduce their output a little to accommodate the new comer, the price fall acts as a deterrent to entry. Besides, the strength of the scale-barrier to entry will lie somewhere between that resulting under Model I and II.

Model IV: Conjecture that existing Firms will increase Output above pre-entry level

Here the potential entrant expects the existing firms to respond by increasing their output to the pre-entry level, so as to drive the price below the LAC in order to squeeze the former out of the market. If this is what actually happens upon entry, the existing firms can, after squeezing out the new firm set the limit-price at such a level that that no other new firm will dare to enter this market because of the bad experience of the first entrant. Bain considers this as a rather unlikely reaction of the existing firms and, therefore, he does not develop the model any further.

Over-all, Bain found from his empirical study that the scale-barrier was very strong in two (out of twenty) industries of his sample, but the barrier operated rather moderately in remaining seven industries.

3. Equilibrium of Industry

So far, we have focused on the limit-pricing behaviour of an individual firm. Bain's theory, applicable as it is to an oligopolistic situation, also deals with the collective behaviour of the firms comprising the *Industry*. Whether the firms produce an identical product or a differentiated one, the concept of industry is applicable. In the former case, it is not difficult to visualise an industry since a homogeneous product is being supplied to the market. But even in the case of several firms supplying a differentiated product (like toothpaste) a certain stable relative price-quality pattern does emerge among them since they face a single demand curve in the market. In this case, the firms in the industry supply a broad commodity group.

The actions of each firm with regard to the price that it charges, or the changes in quality that it brings about, affect other firms supplying that broad commodity group. Therefore, for all practical purposes, the concept of industry does apply to this case.

Within such an industry, each of the large firms will assess the threat of entry and will set a price low enough to forestall entry. The firms may act collusively or individually. Collusion is not necessary if tile costs and efficiency of all firms are identical. They will individually set the limit-price, which they will set through trial and error. On the other hand, if costs and efficiencies differ from firm to firm, collusion will become necessary. The least-cost, most efficient firm will set the limit-price, while others will follow the price leader.

All firms in the industry become conscious of the existence of double interdependence: (i) among the existing firms, and (ii) between the existing firms and the potential entrant. They will deal with situation under (i) through various competitive devices, such as price adjustment and changes in product design. The interdependence under situation (ii) is dealt with through limit-pricing either individually or collusively.

The threat of entry is properly assessed by all the firms in the industry and the price is set in the light of that threat. As noted earlier in this lesson, the existing firms in the industry will try to estimate the strength of the entry barriers which, according to Bain, will be summarised in what is called 'the condition of entry'. This is stated in the form of the equation

$$E = \frac{PL - Pc}{Pc}$$

As explained earlier, this will after re-arranging the equation, work out to PL=Pc (1+E).

Here, PL is the limit price which will be set to prevent entry of new firms. This price will either be sea by the price leader and others will follow it (in the event of a homogeneous product being produced), or each firm, depending upon the strength of consumer preference for its brand of the product, will individually set it. E in the above equation is the margin by which PL will exceed Pc and thus it will be the measure of the barrier of entry. The stronger the barrier, the more will PL be in excess of Pc. If there is no entry barrier E = O, and PL = PC = LAC. In other words, if entry barriers exist, E > O and, therefore, PL > Pc.

In the event of differing efficiencies of the existing firms in the industry and their production of differentiated output, there will be no unique price in a state of equilibrium of the industry. There will indeed be a cluster of prices charged by different firms reflecting differences in product design as well as their efficiencies.

Exercise

1.   Define Bain's Limit Price.

2.   Discuss Bain's concept of entry and entry barriers.

5.   Summary

Summing up this discussion, it would be noted that prior to Bain's theory of Limit-Pricing, the theory of pricing-output behaviour made unrealistic assumptions about entry of

firms into an industry. Bain's theory rectified this drawback in the received theory anti brought it closer to reality. In fact, Bain's Limit-Pricing theory is an important contribution in the development of industrial Economics. The latter, it would be recalled, studies the actual behaviour of firms in the market place. Bain's Theory of Limit-Pricing gives an important insight into how the threat of entry influences the pricing behaviour of firms in a primarily oligopolistic market and how the existing firms set a price which would help them in averting this threat. Another merit of Bain's theory is its attempt to show that in a basically collusive oligopolistic situation, the price leader, being the large firm with lowest costs of production, will not necessarily set a profit-maximising price but one which will help in preventing entry. The rationale of the theory is that by setting such a price and thus by preventing entry, the long-term profits of firms in the industry would be maximised.

A couple of drawbacks in Bain's theory are also pointed out. One of these is the theory's limited interpretation of entry. As noted earlier in this Lesson, Bain confines himself to the consideration of setting up of only the new firms. Economists have pointed out that much of threat of entry to existing firms in an industry comes from either one elf the existing firms expanding its production capacity substantially, or an established firm in another industry adding a new product to the goods already being produced by it. These cases are excluded from the definition of entry by Bain. Secondly, Plan includes product differentiation and economies of scale among the barriers to entry. However, it is pointed out that these two in some situations may in fact help in inducing entry of firms. Producing differentiation provides room for new firms to place their new brands into the market and thus create a preference for their product without attracting the consumers away from existing firms in the industry. Similarly, if a new entrant can set up a huge plant in the very beginning, or a plant using improved technique of production, it scale economies can ensure to it low costs of production or better quality, which will enable it to steal a march over its rivals.

Despite these drawbacks in Bain's analysis of limit-pricing, the theory marks an important landmark in the development of pricing theory of firms in the real world.

Since the pioneering work of Bain in this field in the late 1940s and the mid-1950s, some later economists have made important contributions to the further development of theory of limit-pricing, P. Sylos-Labini (1957) developed the theory further within the framework of scale-barriers to entry, taking mainly the case of a homogeneous oligopoly whose technology is characterized by considerable scale-economies, Sylos's theory is particularly known for assuming a certain behavioural pattern on the part of the existing firms and the potential entrant. This is called 'Sylos Postulate'. This 'Postulate' and the assumption of scale-barriers became the basis of development of a model of limit-pricing by France Modigliani later (1958). And the Modigilani model was further taken up for still further development by Jagdish Bhagwati (1970). Bhagwati's contribution was particularly important for its having made the theory of Limit-Pricing dynamic, in the sense that it call predict the changes in the limit-price arising from a growing market. From the foregoing developments in the theory has emerged what is called Sylos-Bain-Modigilani-Bhagwati postulate which says that the limit-price will be higher than the LAC on account of the Seale-barrier to entry. Thus, entry-barriers enable the firms to earn supernormal profits. Bhagwati refers to even a mixed strategy which the existing firms may follow. Over a certain period of time they may charge a monopoly price, but eventually as the threat of entry grows, they may adopt an entry-

preventing or limit-price. B.P. Pashigian in 1968 further analysed this component of the Bhagwati model.

These later developments in the Limit-Pricing Theory are not being dealt with in detail here, because year syllabus on Industrial Economics requires you to study only the Bain's Theory.

6. Glossary

- **Condition of Entry:** $E = \dfrac{PL - Pc}{Pc}$.

- **Entry Barrier:** Bain defined entry barrier as anything that allows incumbents to earn above-normal profits without inducing entry.

- **Product Differentiation:** Product Differentiation is a process used by businesses to distinguish a product or service from other similar ones available in the market.

- **Potential Entry:** Potential entry refers to the likelihood of the entry of new firms.

- **Limit Price:** Limit Price is a pricing strategy used by firms to deter entry into market by potential competitions.

7. Answers to Self Check Exercise

Answer to Q1 Refer to Section 3.

Answer to Q2 Refer to Section 3.

8. References/Suggested Readings

- Bain, J.S. (1956). Barriers to New Competition. Harvard University Press, Cambridge.

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9. Terminal Questions

Q1. Define Bain's Limit Pricing Theory. Also explain the rationale behind a firm adopting this strategy.

Q2. Explain the Bain's model of scale barrier.

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LESSON-8

INVESTMENT DECISION: ALTERNATIVE APPROACHES

STRUCTURE

1.   Introduction

When a productive enterprise is set up and the resources have to be sunk or committed to production for a fairly long period of time, the entrepreneur has to be carefully weigh the relative costs involved in doing so over that period and the expected benefits. The investment decision has both micro and macro dimensions. At the micro-level the decision is taken the entrepreneur and at the macro-level the planning agency has usually to take the investment decision while deciding which particular projects should be included in the plan and which ones should be left out. In the present lesson, we shall be concerned with its micro dimension.

In taking the investment decision, the entrepreneur is supposed to adopt any one of the *investment appraisal criteria* which are theoretically available to him and out of which some are actually used by him. For investment appraisal some of the approaches are *conventional* in nature, which we shall be discussing in the present lesson but there are others which are *modern* in the sense that these investment appraisal criteria are: (i) the firm which is using these criteria has profit maximisation as its objective, (ii) the firm is independent in taking the investment decision in the sense that there is no central authority (like the Planning Commission) which influences that decision, and (iii) the entrepreneur is operating in an environment of perfect certainty in the sense that he has full knowledge of cost, demand, degree of competition, etc. both current and future, while using a criterion of investment appraisal. The last-mentioned assumption will be abandoned in the following lesson.

2.   Learning Objectives

Upon completion of this lesson, you will have a comprehensive understanding of:-

* Understand the Conventional Investment Appraisal Criteria

* Understand the Social Cost-Benefit Appraisal

3.   The Conventional Investment Appraisal Criteria

When an entrepreneur plans to set up an industrial enterprise, he may choose any one of the following investment criteria:-

(a) The Payback Method:- This is one of the relatively simpler albeit a less scientific method of appraising an investment proposal. The investor arbitrarily chooses a certain period, called the pay-back period, and if he can recoup the *initial investment* within that period, investment in that project (i.e. enterprise) will be made.

This method may be illustrated with the help of the example given below.

First, let us suppose that the profit expected from that proposed investment is as follows:

Item	Year					
	3	4	5	6	7	8
Net profit	80	320	500	650	900	950
Interest	400	350	300	200	80	40
Depreciation	500	500	500	500	500	500
"Profit"	980	1170	1300	1350	1480	1490

Note: (The above figures are in thousands of Rs.)

Here, "Profit" is defined as net profit after tax, but including interest and depreciation. It is assumed that the first two years of the life of the enterprise would be speed can construction of the factory and installation of machinery, etc.

Calculation of the pay-back period

Value (in thousands of Rs.)

1.   Total investment costs   7,000

2. Annual net profit including interest and depreciation (as shown below):-

Year	Amount Paid Back (="profit")	Balance at end of year
1	-	7,000
2	-	7,000
3	980	6,020
4	1,170	4,850
5	1,300	3,550
6	1,350	220
7	1,480	720
8	1,490	

It would be seen from the above calculations that this project will have a pay-back period of about 7.5 years in which the entire investment costs will be recouped. If the investor had fixed a target of recovering his total financial investment within a period of, say, 8 or 9 years, which was his target pay-back period, the actual pay-back period in this example being 7.5 years, this investment will be made. It is also clear that if several investment proposals are simultaneously being appraised or considered, the one which has the shortest pay-back will be selected.

The obvious merits of this method are as follows. The computations are easy and the logic behind it is straightforward; since the target is to recover financial investment as quickly as possible, the firm avoids several risks, which may be involved in business over longer time period; and this is a handy method for a project where investment is made on borrowed fund which, if not repaid quickly will unnecessarily burden the firm with interest payments over a long period of time.

However, a simple and ready-to-use method like the present one has also serious drawbacks like it's not discounting the income stream from the proposed investment, its assumption of profit maximisation, and liquidity as the over-riding goals of the investor, its ignoring the period after the pay-back, and its lack of emphasis on rate of profitability of proposed investment.

(b) The Book of Accounting Rate of Return Method:- This another rough and ready method like the preceding one. The accounting rate of return is a ratio of the average annual profit which is attribute to the investment to the initial capital outlay. The ratio may either compare the total profits with the total investment outlay, or alternatively, the average profits

with the average capital employed. The practice of defining profits and capital employed in this method varies from country to country and from project to project in the same country.

The simple rate of return is computed as:

$$R = \frac{NP}{K} \times 100$$

Where, R = accounting rate of return on total investment, NP = the net profit (after depreciation, interest charges and taxes) and

K = total investment costs (fixed and working capital)

The calculation of book or accounting rate of return is illustrated with following example:

S. No.	Item	Year					
		1	2	3	4	5	6
		(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)
1.	Net profits after tax and interest charges	5,000	10,000	15,000	20,000	25,000	50,000
2.	Depreciation	4,000	4,000	4,000	4,000	4,000	4,000
3.	Net income (1-2)	1,000	6,000	11,000	16,000	21,000	26,000
4.	Book value of net investment as on: (i) 1st Jan (ii) 31st Dec	24,000 20,000	20,000 16,000	16,000 12,000	12,000 8,000	8,000 4,000	4,000
5.	Average net book value for the year	22,000	18,000	14,000	10,000	6,000	2,000

In the foregoing calculations, it is assumed that a total investment of Rs. 24,000 is envisaged for this project, with capital depreciating at an annual rate of Rs. 4,000. At this rate of depreciation, there would be zero salvage worth of this project in the sixth year. The taxes are assumed to be zero. The book or accounting rate of return for this project can be alternatively calculated as ahead:-

(i) The average rate of return $\dfrac{Rs.13,500}{Rs.12,000} \times 100 = 112.5\%$

The figure of Rs. 13,500 is the average of the net income for a six-year period, and it is divided by Rs. 12,000 which is the average net book value for that period.

(ii) The accounting rate of return $\dfrac{Rs.13,500}{Rs.24,000} \times 100 = 56.25\%$

Here, instead of taking the average investment for the six-year period, the initial investment of Rs. 24,000 is taken.

The chief merit of this method is its simplicity. It also provides a measure of *rate* of profitability. But its major drawbacks are: the conceptual problem of adding up the net income and investment costs of different years which from the economics point of view is not permissible, as shown below: the difficulty of comparing under this method those projects which have different life spans; and the lack of precision regarding what is to be included within the terms profits and investment costs.

(c) The Net Present Value Method:- The chief drawback of the preceding two methods, as also indicated in the last paragraph is that these add up to incomes accruing in different years to get a sum of total net income or profits. This on economic grounds is not permissible. The reason is that the money received in the future is not equivalent in value to an equal sum received in the present. Money has a time value. A given sum available new is worth more than the same sum available sometime in the future. A sum of Rs. 100, it available now can be lent out, which when repaid by the borrower will have risen to, say, Rs. 110 next year. Thus, when a project involving investment yields a stream of income over a number of years, the income of each year has to be suitably *discounted*, so as to get its *present value* as a single sum.

Let us take an investment of capital of Rs. 100. This when invested at an interest rate of 5% now will become Rs. 105 next year. In general terms, if a sum of money, A, is invested at an interest rate r now, it becomes A (1+r) in one year's time. So in this example, the present value of Rs. 100 invested last year is Rs. 105 now. So given this value of r, a sum of Rs. 95.24 last year has a present value of Rs. 100, just as a sum of Rs. 105 next year also has a present value of Rs. 100.

The method of calculating present value through discounting may be explained as ahead.

Let rupees A be invested at a compound rate of interest r. The yield after one year is

rA + A = A (1+r)

Similarly, the yield after two years will be

A (1+r) (1+r) = A $(1+r)^2$

And after n years the yield is

A = $(1+r)^n$

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If a sum of money available now is denoted by A and one due in the future by v, then after one period

$V = A (1+r)$

and after n years

$V = A (1+r)^n$

or $V = \dfrac{A}{(1+r)^n}$

In this equation, the fraction, the fraction $\dfrac{1}{(1+r)^n}$ is called the discount, which is applied to incomes that are due in the future to reduce them to their present value. The general formula for getting the present value (pv) of sums that are due in the future over a period of n years is

$$PV = \sum_{i=1}^{a} \dfrac{V_i}{(1+r)^i}$$

In this equation, the present value (pv) of all the incomes that are due in the future is equal to sum total of such future incomes (Σv) expected to a accrue over a period of time (n years) which is discounted by the discount factor $\dfrac{1}{(1+r)^n}$.

The present value of expected incomes from a given investment calculated with the help of the above formula can be used for assessing the economic viability of the project being considered as also for ranking the projects for acceptance in case several projects are under consideration. In order to do that the PV of each project is equated with its initial investment cost (C_0). The difference between PV and C_0 is called the 'net present value' or NPV. Therefore,

$$NPV = \sum_{i=1}^{n} \dfrac{V_i}{(1+r)^i} - C_0$$

As investment proposal becomes acceptable, i.e. a project is economically viable only if NPV$\geq$0. In other words a project can be justified on economic and commercial grounds only if it gives a net present value of greater than or equal to zero. Naturally, the greater the NPV of a project the more profitable it will be because, as would be clear from the foregoing the NPV is the surplus income generated by the project after the entire initial investment cost has been recovered.

The net present value method is an important upon the earlier two methods because it takes into account the time value of money through discounting. It makes the value of money time periods comparable with each other through the calculation of their present value. But

there are also a couple of drawbacks of the method. One of that NPV is not a rate of return on investment, since it is not possible to separate out returns to each factor of production. Secondly, the value of NPV is very sensitive to the value of rate of interest chosen for discounting. The lower the value of r the greater will be the NPV of the project. Therefore, taking an appropriate value of NPV, otherwise the exercise of project appraisal will go haywire.

(d) The Internal Rate of Return or the Marginal Efficiency of Capital Method:- The internal rate of returns (IRR), which is widely used in the project appraisal, is the same as MEC – a familiar concept in Keynesian economics, is also sometimes referred to as the *'solution' rate of interest*. The IRR or MEC is defined as the rate of interest which equates the discounted present value of expected future receipts from a project to the present value of the stream of cost outlays on the project. In other words, it solves the equation for the discount rate that makes NPV = 0. Thus, the IRR of the project would be:-

$$\sum_{t=0}^{T} V_t \frac{1}{(1+r)^t} = \sum_{t=0}^{T} C_t \frac{1}{(1+r)^t}$$

When V = expected income stream from the project, C = expected cost stream, t = total life span and T = the terminal year of the life of the project. The left hand side of this equation shows the sum total of the expected receipts from the project during its life span which ranges from zero period to the terminal period and which is discounted at the discount factor $\frac{1}{(1+r)}$ so as to get its present value. The right hand side of the equation gives the present value of the sum total of all the costs incurred over the project during its life time.

In the above equation, the values V, C and T are known, but r is assumed to be unknown. The equation is solved to determine the value of r, the rate of discount.

The problem with this method is that there is no unique r for a project. There will be more than one IRR depending on the number of years one is considering. In practice, the internal rate of return is found by trial and error method. To start with, a rate of interest is chosen arbitrarily to calculate the NPV of the project. If the NPV is negative or positive, the rate of interest (i.e. the rate of discount) is raised or lowered, till the NPV of the project becomes zero. This rate of interest will then be adopted as the IRR for the project. The logic behind it is that we are comparing the IRR of the project with the cost of borrowing capital (i.e. the rate of interest) for making investment in that project. A project will be economically viable only if the IRR of the project is equal to or greater than the actual rate of interest. The greater this gap between the IRR and r, the stronger would be the case of making the investment. If several investment opportunities are being considered as alternatives to each other, these will be ranked according to their IRR and the one having the highest IRR will be finally chosen.

4. The Social Cost-Benefit Appraisal Method:-

At the beginning of this lesson, certain assumptions of the conventional investment appraisal criteria were stated, among which one was that the firm which is going to make investment has profit maximisation as objective, and secondly, that the firm independently

takes the investment decision. In LDCs where capital is scarce and where public and private sector firms co-exist along with a measure of economic planning, the foregoing assumptions are usually not valid. The investment appraisal has to take place form a social point of view. In this case, profit maximisation is no longer taken as the criterion of judging desirability of undertaking investment. Some other criteria such as social marginal productivity, capital-output ratio, employment or consumption are taken as the socially desirable objectives of investment. Therefore, a *social cost-benefit* appraisal method is considered more relevant in LDCs.

Although, ideally speaking, all investment whether in the private or the public sector, should be appraised on the basis of this method, yet in practice the social cost-benefit method is adopted primarily in the case of the public sector investment projects.

When an industrial firm is to be established within the public sector, the desirability of such investment in appraised by considering not merely the private benefits and costs (which are the same as taken into account in the investment appraisal methods discussed earlier in this lesson) but also the *social benefits* and costs as well. For a public sector project commercial profitability may be secondary importance. What is more important is the contribution the firm is going to make to the national economy and the attainment of national objectives. Based on this general consideration, the investment decision in the public sector is taken on the basis of different criteria than in the strictly private enterprise system. Let us, therefore, note below how the method of social cost-benefit appraisal, primarily applicable to the public sector projects is different from the methods discussed earlier which were relevant to a predominantly private enterprise system where firms are assumed to pursue profit maximisation objective.

(a) Social benefits and costs:- In the case of public sector investment proposal, the appraisal methodology goes beyond commercial profitability and takes a broader view of benefits and costs of the project. What does the broad view imply? Take benefits of the project first. While identifying and computing social benefits, the objectives being pursued by the society, the govt. (or the central decision-making body like the Planning Commission) are taken note of. Having done that, all the direct and indirect contributions which the project is expected to make to the attainment of these objectives are estimated. This may include the increase in consumable output, employment, improvements in income distribution, gains in the form of import substitution, etc. resulting from the investment being appraised. This reference to social benefits is only illustrative in nature. The social benefits will vary with nature of projects being considered.

On the costs side, the appraisal of public sector investments takes into account the social costs. One item of social cost of a project is its opportunity cost i.e. the output of other goods and services which may have to be sacrificed for the sake of the project under consideration. For instance, if the factory is being built on land originally used for cultivation, the opportunity cost of producing the product in the factory would be the fall in the output of crops grown in that area. Another example of the social cost of a project is the external diseconomy generated by it. Suppose the proposed firm is going to produce a good whose toxic by-products when released into a nearby river, will surely kill fish in the river and thereby reduce the profits of another industry, namely the fishing industry. This is an external diseconomy of the firm which will be included in its social costs.

(b) Shadow Pricing:- The social cost-benefit method of investment appraisal does not rely on the market prices for evaluating the social benefits and social costs. After the benefits and costs have been measure din physical terms (e.g. by how many quintals will the output of wheat fall if the factory is set up on a particular agricultural land, or by how many tonnes will the output of fish decline if the toxic effluents are thrown into the river), these are not valued in terms of market prices which suffer from many distortions and do not correctly reflect social value of the goods concerned or the social opportunity cost of the inputs and resources used in the project. For this reason the social benefits and costs of projects are valued at shadow prices.

A *shadow price* is defined as "a marginal valuation imputed to an input or an output" at the optimum level of production. You have already studies the concept and the method of calculation of shadow prices in the course on development and planning and, therefore, nothing further needs be said on the topic here.

(c) The Discount rate used in social cost-benefit analysis:- It was noted earlier that when a project is appraised and the net present value of the stream of expected yields and costs is to be estimated, these yields and costs are discounted at an appropriate discount rate. It was also noted that for this purpose the entrepreneur usually used the market rate of interest. However, in social benefit-cost method, the market rate of interest may not be an appropriate rate of discount for estimation of present value. In LDCs, the rates of interest on saving deposits are very low, while the same on borrowing from the moneylenders are too high. Such disparities in market rates of interest in these countries are due to institutional reasons, market imperfections and monopoly elements in money and capital markets, etc. For public sector projects a social rate of discount, reflecting the social rate of time preference should be used. But there is no unanimity on the question of how to determine the social rate of time preference which should be used. Therefore, in practice value judgements, political considerations and ideological preferences actually determine and influence the social rate of discount. One suggestion in this respect is that the discount rate should be at least as high as the rate of interest, on foreign borrowings. Another is that since the funds for financing public sector industries are mopped up from the private sector (through taxation and borrowing), the average of marginal productivity for private sector projects should be taken as the index of public sector investment. However, specialists in this field are agreed on the point that it is not easy to find the appropriate social rate of discount.

Now, take a public sector investment project for which, let us assume, the social benefits and costs have been identified and computed in real terms, the shadow prices of the goods to be produced and the inputs to be used have been estimated, and the appropriate social discount rate has also been decided upon. For its social benefits-cost appraisal, the following formula would be used:-

$$NSB = PV(B\text{-}C)$$

$$= \sum_{t=0}^{a} \frac{B_t}{(1+r)^t} = \sum_{t=0}^{a} \frac{C_t}{(1+r)^t}$$

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Where NSB is the net social benefit of the project, PV is the present value, B is benefits, C is costs, r is the rate of discount and t is time in years, from the zero to the nth year.

If several projects are being simultaneously assessed, then the NSB of each would be estimated and finally, all projects would be ranked in the descending order of their NSB. Clearly, the higher in the ranking a project is, the more socially desirable investment on it will be.

In the next lesson also the same subject will be pursued further. We shall there deal with some modern approaches to investment appraisal and also introduce the element of uncertainty in the realm of investment decision.

Exercise

1.   What do you mean by pay-back method?

2.   What do you mean by Investment Decisions?

5.   Summary

This unit highlighted some conventional investment appraisal criteria like the pay-back method, the book of accounting rate of return method, the net present value method, and social cost-benefit appraisal method, etc. In making the investment decisions, the entrepreneur is supposed to adopt any of the investment appraisal criteria which are theoretically available to him. However, in LDCs where capital is scarce and where public and private sectors co-exist along with measures of economic planning, the assumptions we discussed in this unit are usually not hold. In this case, profit maximisation is no longer taken as the criterion for judging the derisability of undertaking investment. Some other criteria such as social marginal productivity, capital output ratio, employment and consumption are taken as socially desirable objectives of investment. Therefore, a social-cost benefit appraisal method considered more relevant in LDCs.

6.   Glossary

- **Discount Rate:** The discount rate refers to the rate of interest that is applied to future cash flows of an investment to calculate its present value.

- **Net Present Value (NPV):** Net Present Value (NPV) in the value of all future cash flows (positive and negative) over the entire life of an investment discounted to the present.

- **Pay-back Period:** Pay-back period is defined as the number of years required to recover the original cash investment.

- **Shadow Price:** Shadow Price is an estimated price for something that is not normally priced or sold in the market. Shadow Pricing can provide businesses with a better understanding of the costs and benefits associated with a project.

7. Answers to Self Check Exercise

Answer to Q1 Refer to Section 3.

Answer to Q2 Refer to Section 1.

8. References/Suggested Readings

- Barthwal, R. (1984). Industrial Economics, Willey Eastern Ltd., New Delhi.

- Devine, P.J., Lee, N., Jones, W.J. and Tyson, W.J. (1985). An Intrduction to Industrial Economics. Routledge.

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9. Terminal Questions

Q1. What is the Net Present Value (NPV) of the investment and how it is calculated?

Q2. What is the Social Cost-Benefit appraisal method? How does it differ from conventional investment appraisal criteria?

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INVESTMENT DECISIONS: MODERN APPROACHES

STRUCTURE

1. Introduction

2. Learning Objectives

3. Modern Approaches to Project Appraisal

4. Risk, Uncertainty and Project Appraisal

5. Summary

6. Glossary

7. Answers to Self Check Exercises

8. References/Suggested Readings

9. Terminal Questions

1. Introduction

In the preceding lesson we discussed some of the conventional approaches to investment appraisal both under free enterprise system and under planning. In the present lesson, the question of investment decisions will be further analysed. In this connection we shall discusses the *modern approaches* to investment appraisal, especially those popularly known as the DECO (or OECD) and the UNIDO approaches. Then we shall introduce the question of risk and uncertainty in investment decisions.

2. Learning Objectives

Upon completion of this lesson, you will have a comprehensive understanding of:-

- Understand modern approaches to Project Appraisal

- Understand risk and uncertainty associated with Project Appraisal

3. Modern Approaches for Project Appraisal

In the context of economic planning, in LDCs it had become necessary to device some new criteria of investment appraisal. The conventional criteria were either based on commercial profitability which is appropriate only in a capitalistic free enterprise system or even social criteria which could not resolve the issue of how shadow prices would be determined and what comprised benefits and costs of projects. During the 1960s and especially 1970s, many efforts by individual economists and international institutions were made to develop suitable criteria of social appraisal of industrial projects. In this connection,

the names of E.J. Mishan, S. Marglin, A.C. Harberge among individual economists, and United Nations Industrial Development Organisation (UNIDO) and Development Centre of the Organisation for Economic Co-operation and Development (DECO/OECD) can be particularly mentioned. Out of these, the approaches of DECO/OECD and UNIDO shall be discussed in detail below.

(a)   The DECO/OECD Approach

A study titled *Manual of Industrial Project Analysis for Developing Countries,* Volume II, *Social Cost Benefit Analysis* was published. After this *Manual* I.M.D. Little and J.A. Mirrlees followed it up with a book bearing the title *Project Appraisal and planning for Developing Countries* (1974). This approach is, therefore, more appropriately referred to as Little-Mirrlees (or L-M for short) approach.

The justification provided by this approach for social cost-benefit appraisal of projects is that in LDCs the price mechanism does not work near perfectly just as it does in the developed countries. Phenomena like inflation, over-valuation of currency, underemployment, imperfect capital markets, interference with price mechanism in the form of protection to industries, existence of large external effects, etc. render the price mechanism to be an imperfect guide to policy in LDCs.

According to this approach, industrial projects should be appraised by taking into account the physical amount of costs and benefits and then valuing these costs and benefits at their shadow or accounting prices. We shall come to the question of shadow prices, as dealt within this approach in a minute, but before that there is a further question of effects of projects on savings and consumption.

The choice between promoting consumption or savings is in fact a question of distribution of benefits between the present and the future time period. If, during the process of project selection, the govt. feels that future consumption through savings and investment now should be encouraged, it will choose a discount rate for projects (in order to estimate their PV) which is lower than the current market rate of interest. On the other hand, if present consumption is considered to be more important, project costs and benefits will be discounted at a higher than the market rate of interest.

In project selection, the question of indirect or external effects also arises. These external beneficial effects of investment in a project are sometimes considered to be an added merit of the project. But this (DECO/OECD) approach does not consider such effects to be of much importance in project evaluation, since Little-Mirrlees believe that there is very little positive evidence that such effects in fact do exist. This approach, therefore, argues that while appraising projects, it is not their expected receipts and expenditures which should be taken into account. It is rather the cost-benefit analysis which is needed.

The basic idea behind such analysis according to this approach is the use of accounting rather than actual prices for evaluating projects. The accounting or shadow prices are supposed to reflect better the real costs to the society of the inputs used and real benefits of the output to the society. A shadow price should correspond closely to the realities of

economic needs to the society. So accounting prices should be, as far as possible, exact reflections of social costs and benefits.

How are the shadow prices estimated. According to Little and Mirrlees, a project should contribute to saving. Therefore, while savings reflect the social benefit of a project, consumption reflects its costs. Thus savings are used as a numeraire (unit of measurement) in this approach. Its use may be illustrated in the context of estimation of shadow wage rate (SWR).

When workers are to be employed in the project which is being evaluated, they may be withdrawn from other occupations where their withdrawal will entail a fall in output. This fall in output is the social cost of employing labour there. But how is it to be converted into monetary value? The procedure recommended by this approach is as below.

Suppose the wage paid to the worker in his new job (c) is higher than the value of output foregone elsewhere (m). Further suppose that, taking savings as the numeraire, one unit of current consumption is socially worth 1/s units of current savings. Then the cost of employing one more worker on the project (in terms of savings) is:

$$SWR = m + (c-m) - (c-m)/s$$

The first term on the right hand side of this equation is the output foregone by the society. Under the second term (c-m) is the extra consumption which the worker will have to be provided in his new job, which (in terms of savings) is a cost to the society. Thus, the shadow wage rate (SWR) is determined partly by the output foregone in alternative employment and the increase in consumption of labour in the proposed project, both of these taken together are the social costs of employing labour in this project.

(b)   The UNIDO Approach

The United Nations Industrial Development Organisation (UNIDO) started developing a methodology and practice of national benefit-cost analysis for industrial project evaluation in 1965. But its most influential work in this area is the publication of *Guidelines for Project Evaluation* in 1972, a study prepared by Partha Dasgupta, Amartya Sen and Stephen Marglin. The basic approach on project evaluation of the *Guidelines* is that those projects should be singles out for operation in LDCs which contribute the most to the ultimate objectives of the countries. The *Guidelines* have been prepared for the guidance of the govt. project evaluators. Therefore, these Guidelines of the UNIDO provide criteria of social benefit-cost analysis. The objective of such analysis is to maximise net social gain through project choice. That net social gain is the difference between aggregate social benefits of the project and the aggregate social costs.

For practical appraisal of projects then the questions is what is to be included within the term social costs and social benefits. According to the *Guidelines*, the distinction between benefits and costs is merely one of the sign. A given benefit of one project may in fact turn out to be a cost in case of another project. For instance, a certain project may lead to the production of additional consumption goods for the society. Here it would be counted as a social benefit. But if another project is chosen at the expense of the earlier project, it would mean the sacrifice of that additional consumption, and it would be counted among the social

costs and benefits of a project, first of all, the national goals or objectives are pinpointed. The UNIDO approaches identified the following as the national goals for project appraisal: (i) the aggregate-consumption objective, (ii) the income redistribution objective, (iii) the unemployment reduction objective, (iv) the self-reliance objective and (v) the merit wants objective (where some wants may be considered really meritorious from the social angle, such as girls' education, even if the common man does not perceive it to be so).

After having enlisted the national goals, the next problem is that of converting the goals into benefits and then further translating them into a single aggregate measure.

Corresponding to the private commercial profitability of a project under a private enterprise system, the UNIDO approach refers to the aggregative national economic profitability, R is clear that it would be an aggregative measure of the above mentioned social objectives. Suppose B_1 is the measure of benefit 1 (e.g. benefit 1 may refer to the increase in social consumption due to the project, being appraised), B_2 that of benefit 2, and so on. The problem is that of adding them up. The problem arises because each benefit is in different units. Another problem is of deriving the weights to be assigned to each benefit. The society obviously does not value each benefit equally. For example, for the society, increase in one unit of consumption may be twice as important as increase in one unit of employment, and so on. Thus, the project evaluation has to assign these weights to the social benefits on the basis of the national parameters.

Suppose a planner considers v_1 units of B_1, v_2 units of B_2 and v_3 units of B_3 as constituting the social welfare function. Then the total social benefits from these three sources of benefits would be experienced as:

$$\bar{B} = v_1 B_1 + v_2 B_2 + v_3 B_3$$

Suppose further that benefit 1 is chosen as the unit of account in terms of which all the other benefits are expressed; then everything will be divided by v_1. So,

$$\bar{B} = B_1 + w_2 B_2 + w_3 B_3$$

Where $w_2 = v_2/v_1$ and $w_3 = v_3/v_1$. Thus, w_2, w_3, etc. are the weights assigned to B_2, B_3, etc. which are equivalent to one unit of B_1.

Therefore, the aggregate on n type of benefits would be expressed as:

$$\bar{B} = \sum_{i=1}^{n} w_i B_i$$

Where $\bar{B}$ = total benefits.

In a social cost-benefit analysis, the social costs have also to be evaluated. The UNIDO approach takes opportunity cost as the appropriate measure of social costs. Opportunity cost of a project is defined as the maximum alternative benefits expected from

projects Y and Z have to be sacrificed, then the maximum of the benefits that could be derived from these (Y and Z) projects are the relevant social costs of project X.

It is clear that the aggregate benefits of a project are the social benefits derived while the social costs are the benefits sacrificed. The benefits of a project consist of its "net output", defined as the goods and services made available to the economy that would not have accrued to it in the absence of this project. Similarly, the costs of a project consist of its "net inputs", defined as the goods and services withdrawn from the economy that would not have been withdrawn if the project had not been executed.

The above mentioned are references only to the direct benefits and costs of a project. For investment appraisal, indirect benefits and costs of a project have also to be considered. These are usually covered under the term "external effects" of a project. Because of the vagueness associated with measuring such "external effects" the UNIDO approach takes only those indirect effects or externalities which are easily identifiable and measurable. These are those net galas to the society which are not wholly captured by these who acquire the project output. These result in lower production costs for other producers owing to their ability to use free of charge a facility created for the project. For instance a road constructed at the project site would also be used by others. In the case of *indirect cost* of a project there is a net loss to the society, through an indirect effect. An example is the pollution caused by an industrial project.

4. Risk, Uncertainty and Project Appraisal

The foregoing methods of project appraisal including those discussed in the preceding lesson, have the underlying assumption that all the data needed for such appraisal, like the expected incomes, factor costs, additional consumption or employment to be generated by the project, are completely known to the decision-maker. This is the assumption of perfect certainty. The actual world is full of risks and uncertainties due to which there is a lack of foresight regarding the course of events during the lifetime of the object.

The experts of project appraisal analysis have, therefore, to suitably modify the foregoing analysis so as to take explicit notice of these risks and uncertainties.

First of all, let us distinguish between risks and uncertainties. When something happens its results are called outcomes. Risky outcomes are those whose occurrences is characterised by unknown probability distribution. In simpler words, when possible outcomes (i.e. alternatives) are already known and are measurable these are called risky outcomes. For instance, about rainfall in India it is usually said that there is a cycle of five years: two year's experience normal rainfall, two years deficient rainfall. The alternative outcomes are known, the only risk being that in a given year actual rainfall tell may the normal, deficient or excessive. On the other hand, in the case of *an uncertain outcome*, the probability distribution of the various outcomes is not known. This is a situation of complete unpredictability.

Different economists, such as H.M. Markowitz, Baumol, R.S. Chtaifer, as also the UNIDO have attempted analysis of incorporation of uncertainty into the questions of investment appraisal. Let us first of all take the analysis of different economists who have suggested simple methods of carrying out project appraisal under conditions of uncertainty. It

may be added here that while suggesting these alternative approaches, usually no distinction is made between risky and uncertain situations.

One approach used is to raise the rate of discount appropriately in the case of projects whose outcomes are uncertain so as to lower their net present value. If for the project, borrowed capital would be available at 15% rate of interest which would have been used as the rate of discount it may be raised by 2% for making allowance for the risk factor. As the rate of discount for such projects rises, their NPV will fall and consequently their ranking will fall in comparison to the projects with completely certain outcomes. This drawback in this method is the arbitrariness involved in raising the discount rate.

A second method is to overemphasise the future cost and to underemphasise the expected benefits of a project involving uncertainty. This would penalise the project with uncertain outcomes in comparison to the one with completely known outcomes. In this case too, the NPV of the former will turn out to be lower than that of the latter and thus relegate them to lower positions in the ranking or desirability of projects. As is clear, das method also permits arbitrariness to creep into the quantitative analysis of project appraisal. For instance, the question is: what should be the extent of over and under-emphasis of costs and benefits in a certain project?

Another method of treating the risks and uncertainty in project revolution is to calculate expected present value (EPV) under alternative situations in compassing a range of probable values. This is an approach which has been advocated by UNIDO and it may be discussed in some detail.

As noted earlier, under uncertain situation the probability distribution of various outcomes is not known which in other words means that in the future any number of outcomes can arise and the alternatives cannot be predicted. However, according to UNIDO approach to treat uncertainty in project appraisal, the evolution can visualise the various possibilities and way each against the other. For instance, there can be various possibilities regarding the price of the product to prevail in the years to come which the industrial project under consideration is going to produce. Out of these the unlikeliest cases can be ruled out. the rest of the key says can be considered "according to various degrees of belief about the likelihood of different outcomes". Thus, ruling out of the unlikely outcomes will leave only some outcomes which appear to be more likely to occur. In this respect, the past experience can also be of some help. And from this, a probability distribution of the expected outcomes would be obtained which can be used for project evaluation under conditions of uncertainty.

Taking only the national objective of maximisation of aggregate consumption on the benefits side, the method of project evaluation under uncertainty is illustrated by the UNIDO approach as follows. Suppose the project will last up to the year and decision maker assumes that the probability of the net benefit of the project, B_{it} is q_{it}. Here I is the index of all facts relevant to the project's performance. Then, the expected value of net benefits of the project in year t is:

$$E(B_{it}) \leq \sum_i q_{it} B_{it}$$

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This expected value is discounted at the social rate of discount to obtain the present value of the expected net benefits of the projects. The expected value of the net benefits (EPV) will in fact be the sum total of such expected benefits of all the years of the life of the project. The EPV then becomes the indicator of the desirability of the project, will only a project having a positive value of EPV being accepted for implementation and the one with the negative value being rejected. If several projects are being simultaneously appraised, those with positive values of EPV would be ranked in the descending order of their EPV and the ones with higher EPV are preferred to those with a lower EPV.

Earlier, we discussed the OECD or Little-Mirrlees (L-M) approach to project evaluation. How does this approach deal with the question of uncertainty? In the first place, L-M consider uncertainties involved in particular projects as insignificant when measured against the total performance of an economy and they feel that not much harm would be done if no allowance is made for such uncertainties.

One way of dealing with uncertainties according to this (L-M) approach is to carry out a sensitivity analysis under which all reasonable possibilities are taken into account and thus a range of possible present social values of a project can be estimated. But thus according to L-M is only the beginning of adequately dealing with the uncertain prospects of a project.

Like the UNIDO approach discussed earlier, I.M. also advocate the estimation of expected present social value (EPSV) of projects involving uncertainties. Probability distributions (that is, expected alternative values) of variables may be estimated. Whenever probabilities can be assigned to the various possible values of a variable, the expected value can be calculated in this way: Suppose a variable X (it may be output, exports, prices, etc.) can take the values x_1, x_2, x_3………….., its expected value would be $p_1x_1 + p_2x_2 + p_3x_3$…………, where pi is the probability of assuming the value X_i.

In this way estimates of probability distributions for social profits in all the years of the life of the project can be made. The expected social profit of each Year can be suitably discounted to get its expected present social value (EPSV). In other words, the expected values of all the inputs and outputs involved in the project are estimated, which are then valued at their expected accounting prices, and finally discounted in the usual way to gte its expected present social value.

Exercise

1.	What do you mean by Project Appraisal?

2.	Define risk and uncertainty.

# 5.	Summary

In the exercise of estimating the EPSV, the more important quantities involved are the expected outputs, inputs and the shadow-prices. Under uncertainty, the average of various possibilities is struck by using the probabilities of occurrence of each of these variables as weights. In doing so the most optimistic and the most pessimistic possibilities are avoided. A 20% weight may be assigned to each of the extreme estimates (i.e. the ones which are least

likely to occur) and the remaining 60% to the medium estimates. Thus, after having had a clear idea of the probable spread of possible results, the EPSV is estimated.

6.   Glossary

- Discount Rate: The discount rate is the interest rate used to calculate the present value of future cash flows from a project or investment.

- Project Appraisal: Project appraisal refers to the effort calculating a project's viability.

- Risk: When possible outcomes (i.e. alternatives) are already known and are measurable, these are called risky outcomes. Therefore, risk is something that can be measured and quantified.

- Shadow Price: A shadow price is an estimated price for something that is not normally priced or sold in the market.

7.   Answers to Self Check Exercise

Answer to Q1 Refer to Section.

Answer to Q2 Refer to Section.

8.   References/Suggested Readings

- Dasgupta, P., Sen. A., & Marglin. S.A. (1972). Guidelines for project evaluation. United Nations, New York.

- UNIDO (1978). Manual for the preparation of industrial feasibility studies. Chap III and X.

- Little, I.M.D., & Mirrlees, J.A. (1974). Project Appraisal and Planning for Developing Countries. Heinemann Education Publishers.

- Meier, G.M. Leading Issues in Economic Development. Chap X, (IV ed).

9.   Terminal Questions

Q1.   Discuss the modern approaches to Project Appraisal.

Q2.   What is the difference between risk and uncertainty? How risk and uncertainty affect investment decisions?

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MARKET STRUCTURE, CONDUCT AND PERFORMANCE

STRUCTURE

1. Introduction

2. Learning Objectives

3. The Market Structure

4. Market Conduct

5. Market Performance

6. Market Structure-Conduct-Performance Inter-relationship

7. Summary

8. Glossary

9. Answers to Self Check Exercises

10. References/Suggested Readings

11. Terminal Questions

1.   Introduction

In the first lesson of this course, we tried to explain to you the difference between industrial economics and the traditional microeconomics and there it was emphasized that the former is relatively more concerned with the empirical behaviour of the manufacturing units than the latter. For such an empirical analysis, industrial economics usually adopts what has come to be called the *structure-conduct-performance model*. We shall discuss this model or approach in some detail in the present lesson.

This approach first of all examines the characteristic of whole markets or industries exhibiting their structure or form through such indices as the number of firms, the ease or difficulty of entry on new firms, the relative and absolute size of firms comprising each industry, etc. Having done that, this approach then analyses the actual behaviour of conduct of firms within the environment determined by the market structure. And finally, given the structure of industry in terms of indicators, such as profitability, growth and productivity, etc. are analyzed.

The three aspects of this approach are discussed in detail below:

2. Learning Objectives

Upon completion of this lesson, you will have a comprehensive understanding of:-

- Understand the concept of market structure.

- Understand a firm's policies towards its product market and moves made by its rival in that market.

- Know about indices of market performance.

- Know about the inter-relationship among Market Structure-Conduct-Performance.

3. The Market Structure

Although the words *market and industry* may not always be synonyms of each other, yet in the present context market means the same thing as an industry. You have already studied the meaning of the term industry in microeconomics and the difficulties that arise in identifying it in case of monopolistic competition. But roughly it refers to that group of firms which produce goods which are close substitutes of each other.

The term market structure refers to the form, the composition and the nature of an industry. It covers factors like the relative and absolute size of the firms comprising the industry, the ease of entry into it, the elasticity of demand for its output, etc. In terms of these and other indices of market structure, economics divides market structure into a spectrum ranging from perfect competition at the one end and pure monopoly on the other, with monopolistic competition, oligopoly, duopoly etc. coming somewhere in between the two extremes. In order to identify and measure a particular market structure, its elements need to be studied. The elements of market structure are the following:-

(a) Seller and Buyer Concentration:- The concept of seller concentration shall be discussed more fully in the following lesson. Here, it may suffice to say that seller concentration refers to a market situation where within the industry there is a small number of firms each one of which produces a large proportion of the output of that industry. In other words, such firms possess *market power* in the sense that age of these firms can influence the price through changes in their output. Under perfect competition each firm producing an insignificance proportion of total output, has no power to influence the price. In this market-situation seller concentration is zero. But as we move towards the market situation of monopoly, the market power of firms and, therefore, the degree of sell concentration increases.

Buyer concentration is the opposite situation, where in the market there may be only one buyer (i.e. a case of monopsony) or only a few buyers (where it is a case of oligopsony). The existence of buyer concentration in the market offsets the power of the sellers to influence the price.

(b) Product Differentiation:- Under perfect competition, an undifferentiated or homogeneous product is sold. But in actual market situation and essentially single product may be made to appear different to the consumers by each of its producers through

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differentiation. For this purpose, brand names, packaging difference or differences in size, colour, taste, etc. may be used. Even without visible differences variations in the locations of the producers, or the retail services provided by them like door-delivery service, credit facilities, etc. may be used to create consumer preferences.

Product differentiation is the method of acquiring some market power by each of the competing firms. From the economic angle product differentiation changes a market structure drastically. In the case of an undifferentiated good, if a seller raises the price a little, the consumers will shift to the product supplied by other firms.

(c) Barriers to Entry:- It has been noted above that seller concentration shows how in an industry a few firms dominate so that the actual competition between firms gets restricted. If there are barriers to entry of new firms, even *potential* competition gets restricted. Barriers to Entry take one or several of these forms: cost advantage of existing firms (say, in the form of economies of scale being enjoyed by them) not initially available to the potential entrant, legal barriers to entry, existence of strong preferences of consumers for the brands supplied by established firms due to product differentiation and advertisement, etc.

(d) Other Elements:- While the foregoing are considered to be the main elements of market structure, there are others also which meditation in this respect. Among these one if *growth rate of market demand*. If the demand in a particular market has been stagnating, firms will become smug in their behaviour. But in a fast-growing industry the firms tend to become highly competitive. Each firm will try to fight for a greater share of the growing market. Another and related element of market structure is the *price elasticity of demand* for the product. If the demand for the product supplied by an industry is highly price elastic a firm may be tempted to cut price in order to gain a bigger market share. Of course, in an oligopolistic situation, other firms will also follow suit but because of the highly elastic demand there will be an overall increase in the total sales of the industry so that all firms will gain in the end. In this situation, there will be active price competition among firms. But if the demand for the produce is inelastic, no form will take the fully step of changing the price since it will remain unmatched by rivals and the form changing the price either upwards or downwards will only stand to lose. There is thus a lack of active competition among firms.

Besides these, there may be numerous other determinants of market structure but these are either considered to be less important or these are difficult to measure objectively.

4.   Market Conduct

Now the question arises: why is the foregoing study of market structure important? What if the firms in an industry compete with each other more actively or not? The study of market structure, it will be noticed, shows the nature of environment and in which the firms will operate. Thus the firm's behaviour or conduct within the market or industry will be crucially determined by the nature of market structure. This behaviour of the firms gets reflected in the manner in which they change their output levels, their prices, the homogeneity or heterogeneity characteristic of their product, their sales promotion activities and they nature and extent of R&D expenditure, etc.

Market conduct is defined by Richard caves as "a firm's policies towards its product market and towards the movies made by its rivals in that market. A market functions according to certain economic logic with reference to the price of the product, they total demand for the product, its quality, the need for and the nature of advertising, etc. The firms react to the logic of the market by setting their own policies, which are consistent with the objectives that they are pursuing.

Each firm also expects other firms to react suitably to the actions taken by the former. Market conduct in fact consists of these actions and reactions. And it is clear that the nature of these actions and reactions (i.e. the market conduct) will be determined by the market structure of a particular industry. In other words, firms within an industry adopt their respective strategies in order to attain the objectives before them depending upon the environment or the market structure within which they happen to be placed. Market conduct may be studied under following head:-

(a)   Pricing policies

(b)   Product policies

(c)   Coercive policies

Let us discuss each of them separately below.

(a) Pricing behaviour:- A firm sets the price of its product with the view to achieve the objectives (like profit maximisation, sales maximisation, managerial goals, etc.) it has laid down for itself. But the pricing behaviour is crucially determined by the market structure. You already know that the greater the competition among firms and the less differentiated the product, the smaller is the control of a firm or its price. A firm's capacity to set its own price rises with increase in its monopoly power or product differentiation.

The actual markets are usually of an oligopolistic nature. In such a market structure each firm sets its own price but adjust the price to the changing market conditions and the changes introduced by their rivals. Besides, the speed of such adjustment is faster, the less differentiated the product. The pricing behaviour under oligopoly is such that prices are usually sticky or rigid. Various explanations for such pricing behaviour, in the form of the kinked demand curve, full cost pricing, etc. have been offered.

The pricing behaviour, as a component of firm's market conduct is also crucially determined by the objectives that the firm pursues. For example, if it wants to maximise profits, then the firm will equate its MC with MR; if it's aim is to maximise sales revenue, it will set a price equal to AC; if it wants to keep out potential rivals, it will resort to limit-pricing, and so on. The usual method of price-setting followed the most firms is what has come to known ad cost-plus pricing, mark-up pricing or full-cost pricing. You have already studied this method of price determination in an earlier lesson.

A firm's pricing behaviour is crucially determined by the market structure in that the more competitive a market is, the less is the power of the firm to influence its prices. As the number of firms in industry declines, or barriers to entry rise, or the product becomes more differentiated, the firm's capacity to influence its price rises.

(b) Product Policies:- Pricing policies are only a part of the market conduct of firms. In imperfectly competitive market structures, non-price competition among firms is an important component of firm's strategies and market conduct. The sales of the firms critically depend on such strategies and behaviour. One of the most important product policies of the firm relates to product differentiation. In this respect products can be roughly divided into two categories: products which are inherently amenable to differentiation, like cars or apparel, and products which do not lend themselves to much differentiation like sugar and steel. In the former case, even if farms do not have much control over their price (because the number of nearly equal sized firms is quite large), they will try to be in a wean consumers from rivals to product differentiation. However, in both the cases, product differentiation may be based on real differences and products or it may be only spuriously created. For instance, where a product cannot be really differentiated, a firm may try to create an impression of its product being different by giving it a distinctive name, or the outer wrapping only may be different, or the product becomes different simply because it is produced at a particular location.

Another potent instrument of non-price competition and market conduct is advertising. This component of market conduct is analogous to product differentiation so far as it also helps the firms in increasing their market share and consequently their market power. Advertising may also be resorted to buy new firms in increasing their market share and consequently their market power.

Advertising expenditures are fairly high in the industrialised countries. For example, the Price Commission in U.K. found that in the case of some medicines advertising and marketing expenditure was over 27% of the total costs.

Normally, advertising helps a firm to shift the demand curve it faces in the market to the right. But sometimes advertising may be aimed at merely to prevent the demand curve from shifting left words when new entrants threaten to take away a part of the market share of the firm.

Advertising is typical of a monopolistically competitive or oligopolistic market structure. But it should also be clear that advertisement may itself modify a market structure. If the existing firms have succeeded in creating a strong consumer preference for their products, entry of potential rivals may be efficiently checked.

Product policy is as a component of market conduct have some distinct and unique characteristics as compared to pricing policies. For instance, a price-cut resorted to buy a firm in order to increase its market share can always be matched by a similar price-cut by its rivals. However, the same is not true of product policies like product differentiation and advertisement. The firm make creates such a strong product preference in the minds of its consumers, through one gimmick or the other, that the rivals may never be able to match it through the various counter strategies that are available to them. That perhaps is the reason why the firms try to use product policies more than the pricing policies in the market as a part of their conduct.

(c) Coercive Conduct:- It is interesting to note that sometimes within the existing market structure the firms may not easily achieve their objectives. Therefore, they adopt a coercive conduct (where force or compulsion is involved) so as to change the market

structure itself. Of course, it may not be the intended objective of such conduct of the firms to change the market structure in the first place. The latter may only be a fall-out of their conduct.

What are the business tactics which form part of their coercive conduct? Before we enumerate the forms of such conduct, it needs stressing that coercive behaviour is only typical law for market structure where the number of firms is relatively small. This means that such market conduct is typical of oligopoly or even monopoly. In the latter case where potential entry is a real threat to the monopolist, he will engage in coercive conduct.

Coercive market conduct takes mainly three forms, viz price-cutting, entry-preventing and collusion. These may be briefly discussed here.

Price-cutting is a device of taming, weakening or eliminating the actual or profit rivals. In the case of actually existing competing firms and ambitious, usually large sized then adopts predatory price-cutting to tame, weaken or taken out its market rivals. The price may be reduced to unprofitable levels for a period of time. Once the other firms accept that firm as a price leader or leave the industry, the product turn, after ensuring its pre-eminent position in the market, raises the price party to make good the temporary losses sustained and partly to even monopoly profits.

When a monopolist entry apprehends entry of potential rivals he may resort to what is called *limit-pricing*. A limit price as discussed in the preceding lesson, is defined as a price which effectively deters entry of new firms. If the existing firm enjoys the cost advantage, due to economies of scale or control over some critical input, it may set a limit price slightly above its AC but below that of the rivals.

There are several forms of *entry-preventing* coercive conduct. We have just now referred to limit-pricing. Besides this, there are several entry-preventing devices such as vertical-integration, product differentiation, advertisement, maintenance of excess productive capacity, etc. Vertical Integration (which will be more fully discussed in the next but one lesson) countries of backward and forward integration of existing firms, the iron and steel factory say, busy up the mines which supply iron ore to it. This is called backward integration. Alternatively, or at the same time, it may buy up the firm or firms which purchase iron and steel ingots from it to fabricate from this input final products like machinery, tractors, etc. This is called forward integration. As an entry preventing service, the firm may use vertical integration as a *squeeze operation*, in which case the main firm either controls completely the new material or its own output as an input for the subsequent stage of production so that the rivals have either to buy it from the main firm or close down. Squeeze operation can be used as coercive device against the actual rivals. In the case of potential rivals, vertical integration can be used as a coercive device to keep them out.

Product differentiation and advertisement are also potent coercive instruments of entry-preventing. The more a product is differentiated and the greater the advertisement blitz, the more difficult it is for potential rivals to enter the market. Besides, a large firm may also maintain excess productive capacity as an entry-preventing coercive device. Such access productive capacity as an entry of new firms by itself. Besides, the potential rival also knows

that if the existing firm were to use, its excess productive capacity, its average costs would fall, enabling the firm to cut its price somewhat and will earn profits.

Collusion refers to devices used by existing competing firms to come closer to each other with the view to create a joint monopoly position. Open collusion sometimes become illegal sense and most countries there are anti-trust laws. But collusion can be tacit also. Through informal agreements cartels may be created by competing firms with a view to jointly control price or total output. Thus group profits may be maximised. Collusion, co-operation or co-ordination between firms usually succeeds only when the number of firms is relatively small, each firm is of nearly equal size and the product is relatively homogeneous. Large differences in costs may discourage firms from co-ordinating with each other.

It is thus clear that when firms are operating under oligopoly or monopoly their market conduct is different from that of market structures like perfect or monopolistic competition. Market conduct is, therefore, intimately affected by the market structure.

5. Market Performance

The term market performance refers to the appraisal of deviation of an industry's market behaviour from the best norms of such behaviour. An industry is supposed to operate the best under conditions of perfect competition. But as the market structure deviates from perfect competition, so does the market conduct as we have seen above. Consequently, with the changes in the market structure and conduct, the market performance of industries also changes. In other words, particular types of market structure and conduct are consistently associated with particular types of market performance.

Now, the question arises: how do we evaluate market performance of a particular industry? There are certain well-accepted indices in terms of which market performance of an industry can be evaluated. Some of these indices are as below:

(i) Profitability:- As is well-known firms are supposed to pursue some profitability goal either a profit maximisation or a satisfactory level of profits goal. But profitability does not necessarily depend on the performance of firms in an industry. It can also be determined by factors such as monopoly power, product differentiation or merely inefficient use of resources. The economist, however, uses the concept of normal profits which is defined as the rate of return to entrepreneur for bearing uncertainty. The normal profit should be enough to prevent a firm from leaving the industry.

There are problems associated with profitability as a performance indicator. Apart from the varying definitions of profitability and the problems involved in measuring it, there are factors such as monopoly power of firm in the product market or its monopoly power in the factor market which also affects profitability.

(ii) Growth:- The performance of an industry may also be gauged in terms of its growth rate. The growth rate may be measured in terms of output, employment or asset formation. But measurement of performance with the help of any of these indices is also full of problems. For example, an industry may be employing more and more workers or accumulating capital at an accelerated rate, yet it may use these factors inefficiently.

Similarly, when output growth rate is high, we do not know the cost of production, whether it Is high or low. Higher growth of output at rising input use per unit of output is not an index of efficient performance.

(iii) **Productivity:-** It is an index of output per unit of inputs used. If with the same input use more output can be produced, productivity will be rising, which is an index of efficient performance of industry. But even this index is not without its practical drawbacks. Productivity of a particular in port like labour capitalist difficult to measure, unless we can keep other things constant. Besides, labour, capital or lane comprise of heterogeneous units. Thus, as the amount of a particular input is changed, its quality may also change. Still, statistical techniques have been used to measure industrial productivity which can be used as a performance criterion.

(iv) **Social Performance:-** The performance of an industry can also be assessed in terms of several social criteria, such as income distribution or other indices of social welfare. For example, the social performance of pharmaceutical industry may be measured in terms of the fall in the incidence of illness or the mortality rate, etc. A performance of an industry is supposed to meet the ends of social justice if the income created through its production process reduces the existing income disparities in the society or of its product contributes to the reduction of poverty and unemployment.

Now, so far as the foregoing and other indices of market performance are concerned, how are these related to market structure? Take profitability from your knowledge of microeconomics you know that under perfect competition, firms in the long run an only normal profits. But monopoly or firms operating under other market structures characterised by elements of monopoly may continue earning more than normal profits in the long run. High seller concentration barriers to entry and product differentiation produce high profit rates. So far as growth has a performance indicator is concerned, you know again from your knowledge of microeconomics that monopoly and oligopoly are market structures where firms have excess capacity because here firms usually produce are the falling portion of their short or long run average cost curves. This itself acts as a disincentive for potential entry of firms. There may, besides, be other barriers to entry under such market structures. These, therefore, inhibit growth of firms. Then, productivity and efficiency are related phenomena. If under certain market structures, such as monopoly, monopolistic competition or oligopoly firms maintain excess capacity, it indicates an inefficient use of resources and low productivity. Finally, even the social performance of industries may be promoted by some market structures while it may be adversely affected by others. Monopoly and imperfect competition are associated with exploitation of either consumers or workers or both. Increase in competition reduces the exploitation power of producers. Phenomena like supernormal profits earned under certain market forms may increase disparities in income distribution and thus be harmful to society from the equity angle.

6.   Market Structure-Conduct-Performance Inter-relationship

While analysing such an interrelationship a basic assertion about the nature of industrial economies as a discipline distinct from microeconomics is made. It is stated that while microeconomics is a study of equilibrium of firms and industries industrial economics is more concerned with the change in market structures the consequent change which occurs in

market conduct or behaviour of firms, which ultimately has implication for their market performance. Thus, industrial economics can be studied with the help of the *structure-conduct-performance model* or approach. The existence of such a model implies an interrelationship among the three.

The general hypothesis on which the structure-conduct-performance model is based is that as we move away from the perfectly competitive market structure, the competitive conduct of the firms get modified resulting in a change in performance criteria such as profit rates. Jones and Cockerill shown this relationship between market structure and market performance via market conduct with the help of the following chart:-

Structure-conduct-performance inter-relationship

Market Structure / Market Conduct	Perfect Competition	Monopolistic Competition	Oligopoly
1. Seller Concentration	Low	Low	High
2. Product Differentiation	Absent	High	High or low
3. Height of barriers of entry	Absent	Low	High
4. Performance (Profitability)	Normal	Above normal	Above normal

The chart above brings out the predictions of the structure-conduct-performance model. For example, it shows that under perfect competition, market conduct is characterised by lowness or absence of seller concentration, product differentiation and barriers to entry. Such a market structure and conduct results in normal profits as a criterion of market performance. On the other hand, under oligopoly, market behaviour is characterised by high degree of seller concentration, high barriers to entry and product differentiation beings high or low. These result in above normal profits.

But economists are also cautious in pointing out that such an interrelationship is much more complex than indicated here or then what can be easily examined with the help of empirical research. For example, high seller concentration (under oligopoly) accompanied by higher buyer concentration may in fact result in normally profits. Similarly, a constant threat of

entry may induce behaviour on the part of monopoly or oligopolistic firms to keep prices and profits low. However, empirical research has buy and large shown that increase in seller concentration levels or advertising (as a proxy for product differentiation) and rapid rate of growth of demand have a positive effect on profitability. The extensive research being carried out within the framework of the structure-conduct-performance models indicates a certain degree of caution in associating a particular market conducts or performance with the given market structure although broad interrelationships among them can be indicated with confidence.

Exercise

1.   Define Market Structure.

2.   Define Market Structure, Conduct and Performance.

7.   Summary

In this unit, we have discussed about concept of Market Structure, Conduct and Performance. The Market Structure refers to the form, composition and nature of the industry. The market structure includes factors like the relative and absolute size of the firms comprising industry, ease of entry into it, and the elasticity of demand for its output etc. Based on these factors, economics divides market structure into perfect competition, monopolistic competition, oligopoly, duopoly and pure monopoly. The elements of market structure include seller and buyer concentration, product differentiation, barriers to entry, and other elements. Therefore, the firm's behaviour or conduct within the market and industry will be determined by the nature of the market structure. Market conduct is defined as a firm's policies towards its product market and towards the money made by its rival in that market. The market product may be studied through pricing policies, product policies and coercive conduct. However, the market structure and conduct are consistently associated with types of market performance. Therefore, industrial economics is concerned with changes in the market structure and the consequent change which occurs in the market conduct or behaviour of firms. Thus, the study of industrial economics with the help of the structure-conduct-performance model implies an inter-relation among the three.

8.   Glossary

- **Barriers to Entry:** Barriers to entry refers to obstacles or hindrances that make it difficult for new companies to enter a given market.

- **Collusion:** Collusion is an anti-competitive business practice that firms perform in a coordinated manner to obtain benefits at the expense of consumer welfare.

- **Market Structure:** Market structure refers to the form, composition and nature of an industry in accordance with their degree and nature of competition for products and services.

- **Product Differentiation:** Product Differentiation is a process used by businesses to distinguish a product or service from other similar ones available in the market.

9. Answers to Self-Check Exercise

Answer to Q1. Refer to Section 3.

Answer to Q2. Refer to Section 3,4 & 5.

10. References/Suggested Readings

- Hay, D.A., & Morris, D.J. (1979). Industrial Economics: Theory and Evidence, Oxford University Press, Oxford.

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- Caves, R.E. (1964). American Industry: Structure, Conduct, Performance. Prentice Hall.

11. Terminal Questions

Q1. Examine the key elements that contribute to the formation and dynamics of market structure.

Q2. How does pricing strategy impact market performance?

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INDUSTRIAL CONCENTRATION

STRUCTURE

1.   Introduction

In traditional economic theory the usual nation of a market situation is that of either perfect competition characterized by the existence of many small sized firms, or a large-sized monopoly. A market situation of monopolistic competition also implies the existence of a large number of small-sized firms each producing and supplying differentiated products. Modern microeconomics and industrial economics recognize the fact that the dominant market structure in the contemporary world is some-what different from and of the foregoing market situation. It is characterized by a small number of large sized firms usually selling a differentiated product. Thus the dominant market structures a differentiated oligopoly. Its distinguishing feature is a relatively degree of seller concentration and the consequent enjoyment of market power by each firm. In the present lesson we shall discuss the concept, the methods of measurement the causes of emergence, and the effects of industrial concentration. Each of these aspects of industrial concentration is analyzed in some detail below.

2.   Learning Objectives

Upon completion of this lesson, you will be able to:-

- understand the concept of industrial concentration

- know about methods of measurement of seller concentration

- know about the causes of emergence of seller concentration

3.   The Concept of Industrial Concentration

The concept of industrial concentration relates to the number of firms producing a good or service for a particular market and the market share of each of these firms. The concept is in fact related to the degree of market power enjoyed by the firms which in turn depends on (i) the number of firms supplying a good to a particular market, and (ii) the number share of each of these firms. It must be stressed that the concept of industrial concentration being used here refers to what is called seller concentration. It refers to the extent to which output or seller in a market are dominated by a few large firms. This extent or degree gets reflected in, first of all, the number of firms operating in a given market and secondly in the proportion of the total market demand which is satisfied by each single firm. Evidently, if the number of firms operating in a market is small, each firm will be of a relatively large size, commanding a sizeable proportion of the total supply in that market. This would be the case of a high degree of seller (or industrial concentration). A high degree of industrial concentration is necessarily associated with market power being enjoyed by each firm. Market power is defined as the ability of a single firm or seller to influence the price of the product or service which it is producing and selling. A perfectly competitive market is characterized by zero market power. This obviously means that in such a market situation. Industrial concentration is nil. But through the spectrum of market structures as we move towards monopoly the extent of industrial concentration rises.

As was noted in the preceding lesson, industrial or seller concentration is an important characteristic element of market structure. So, on the structure conduct performance model it plays a significant role. Besides, the extent of industrial concentration is an important indicator of the degree of centralization of economic power existing in a particular industry and in the economy as a whole. Therefore, in order to have an idea of centralization of such economics power it is necessary to study the methods of measurement of seller concentration.

4.   Methods of Measurement of Seller Concentration

Measurement of industrial concentration is important for serval reasons. First of all, even in the model of perfect competition, where one of the characteristics of the industry is existence of a large number of firms, there is no guaranties that none of the firms would be enjoying market power, unless we actually measure the extent of concentration. M.C. Sawyer cites an interesting example of British Plastics and Syndetic Resins industry which in 1975 had as many as 508 firms. Yet the share of 422 firms in net output was only 10% while that of the largest 5 firms was as high as 40%. Thus the existence of a large number of firms is no guarantee against the enjoyment of market power by a few very large-sized firms. Secondly, measurement of industrial concentration is necessary to notice whether its degree has risen or fallen over time. Thirdly, measurement is necessary to compare extent of concentration in different industries.

The measures of industrial concentration are divided into two categories viz. absolute measures and relative measures. Each of them is taken up for discussion separately below.

(a)   Absolute Measures of Concentration:

The absolute measures focus on the absolute number of firms and their share in industry output, employment, or assets. There are two main absolute measures of concentration as discussed below:-

(i) The Concentration Ratio (CR) :- The CR measures the share of largest three, four or five firms in the industry output, sales, employment etc. In this lesson, we shall be measuring this share only in terms of output, although other, variables like employment, sales, asserts etc, could also be used. Then a CR is defined as the same of the largest a firms (where a could be equal to 3,4, or 5 or any other number) in the total output of the industrial. CR is then n firm concentration ratio.

Let us take a hypothetical example of a industry where the total number of firms is, say, 40. Suppose we want to focus on the larger (in terms of output) five firms whose share in total industry output is a below:-

Firm A   10,000 units

Firm B   10,000 units

Firm C   9,000 units

Firm D   15,000 units

Firm E   13,000 units

Total number of 5 largest firms = 59,000 units

Total output of industry is assumed to be equal to 1,10,000 units

Then 5 firm concentration ratio

$$\frac{59,000}{1,10,000} \times 100 = 53.64\%$$

In this numerical example, CR = 53.64%, which indicates that the largest 5 firms of the industry account for more than half of the total industry output.

The degree of industrial concentration gets reflected in the CRn of the industry. Formally, the concentration ratio is defined as

$$CR_n = \sum_{l-i}^{n} si$$

where we focus on the *n* largest firms and *si* is the share of these *i* firms (which are n in number) an the total output (and   as we have noted above, it could well be the total employment assets or sales etc.) of the industry.

The concentration ratio could also be given a geometrical form, where it becomes a cumulative concentration curve. Such a curve, based on the numerical example given above is shown below. In the diagram, 5 largest firms are shown on the horizontal axis with the largest firm coming as number one and so on. Their cumulative share in the industry output is shown on the vertical axis, with the share of the largest firm being 15,000 units, largest two 28,000 units, largest three 40,000 units, largest four 50,000 units and largest five 59,000 units. When the relevant points are plotted in the diagram, we get a cumulative concentration curve. It must be noted about this curve that the height of the concentration curve measures the degree of concentration, the greater the height of this curve corresponding to say, four, the higher would be the 4-firm concentration ratio. The cumulative concentration curve is a rough and ready method of demonstrating the degree of seller concentration in two or more industries. In order to make such a use of the curve, the data for two or more industries are plotted in the same diagram so as to derive as many concentration curves. Then their height is compared with each other to notice which industry is more concentration and which less.
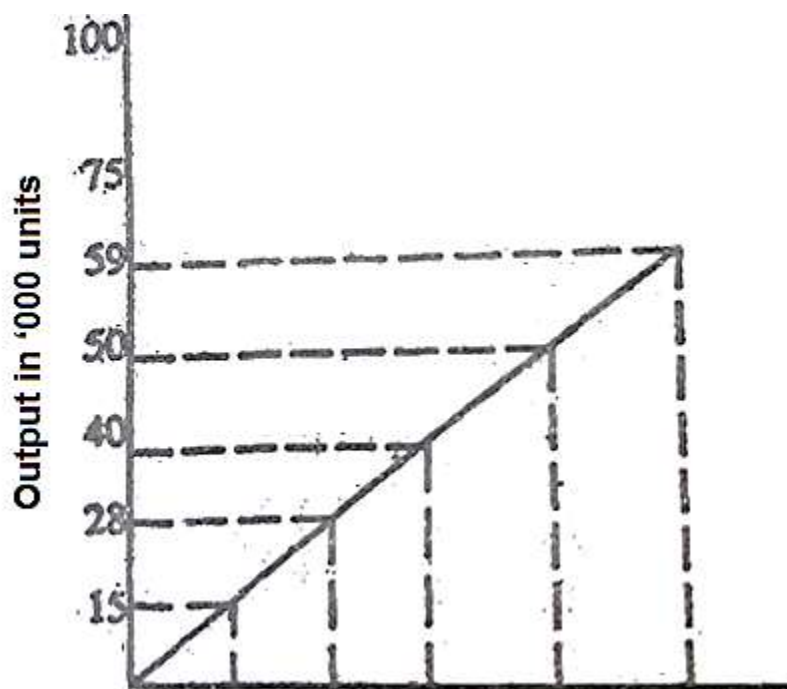
A major problem with concentration ratio as a measure of seller concentration is the choice of *n*. This choice is crucial but there is no theoretical basis for making it. Certain traditions have been followed in this respect. For example, in British it has been common to estimate three of five-firm concentration ratio. While in the U.S.A. the common practice is to calculator four-firms CRs.

(ii) The Herfindabi Index:- This is author absolute measure of industrial concentration. This measure, also sometimes called as the Herfindabi-Hirschman index,

takes into account all the firms in an industry rather than the largest few. The H-index, as it is sometimes referred to, is defined as

$$\text{H-index} = \sum_{i-l}^{N} \left(\frac{\text{xi}}{\text{T}} \right)^2$$

where N= number of firms in an industry

xi=the absolute amount of say output of ith firm

T= total output (i.e. size) of the industry.

It is thus clear that the H-index taxes into account all firms and the difference in their share of the market or industry. The value of the H-index varies between two and one. The former value is assumed by the index when there is a large number of roughly equal sized firms in an industry. The opposite extreme in value will be attained when there is a monopoly (just one firm) in the industry.

Let us take a simple example to illustrate the use of H-index. Suppose in an industry there are just 4 firms, with the share in industry output of each being 500, 350, 300 and 200. Thus T = 1350. The share of each firm in industry output $\left(i.e. \dfrac{X_1}{T} \right)$ when squared is 0×37^2, 0×26^2, 0×22^2 and 0×15^2. Thus, the H-index will work out to 0×275. Since this value is nearer zero than one, it shows that this industry is not very highly concentrated. The index can obviously be used to compare change in concentration in the same industry over time, or the degree of concentration in different industries of a given market.

(b)   The Relative Measures of Concentration

The relative measures focus on the degree of equality/inequality of size of firms, i.e. the degree of inequality in the share of firms producing measure of relative seller concentration is the Lorenz curve, whose algebraic equivalent is the Gini co-efficient or the Gini concentration ratio. In either form, this measure shows the deviation of the actual size distribution of firms in an industry from a situation of complete equality in their size distribution. Let us look at the above diagram, where a Lorenz curve has been drawn. The Lorenz curve is also sometimes referred to as the Lorenz concentration curve. It would be noted in this diagram that the Lorenz curve relates the cumulative percentage of the industry's output to the cumulative percentage of firms in this industry, arranged from the smallest firm to the largest.
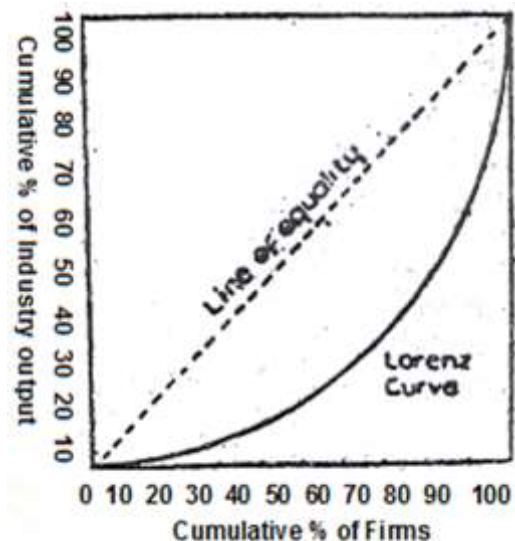
The diagonal straight line in the diagram represents the line of equality, which shows 10% share of the total output of industry being accounted for by 10% firms, 20% firms, and so on. Thus all firms in the industry are of identical size, with none being bigger or smaller. However, in reality that may not be the case with the majority of industries. Varying degrees of inequality in the size of firms in different industries are likely to be encountered in the real world. That is why, the Lorenz Curve, drawn to actual data of the diagram, is likely to lie away from the line of equality, the greater is the degree of industrial concentration. Since the Lorenz curve compares actual inequality with the line of equality, that is, it gives the relatives position of an industry in the matter of inequality in the size distribution of firms in that industry the Lorenz curve measures relative concentration.

The Gini coefficient of Gini concentration ratio is a statistical measure based on the Lorenz curve. The concept can be shown with the help of the Lorenz curve drawn earlier. Look at the Lorenz curve and focus on the triangle below the diagonal line which comprises of half of the entire box (i.e.. the square). The

$$\text{Gini co-efficient of inequality} = \frac{\text{Area between the Line of equality and the Lorenz curve}}{\text{Triangle area under the diagonal line.}}$$

The Gini co-efficient will vary between zero and one. If all the firms are of equal size the Lorenz curve coincides with the line of equality so that the nominator in the above equation becomes zero, reducing the value of Gini-coefficient also to zero. But as inequality grows the value of the nominator relatively to the denominator in the above equation rises, thereby increasing the value of Gini co-efficient.

The Gini co-efficient or the Gini concentration Ratio (GCR) takes the following algebraic form:

$$GCR = 1 + \frac{1}{n} - \frac{2}{n^2 \bar{Y}} \left(Y_1 + 2Y_2 + 3Y_2 + ... + nY_n \right)$$

where $Y_1 .... Y_n$ represent firm's output in decreasing order of $\bar{Y}$ is the mean output, and n is the number of firms in the industry.

Although the above mentioned measures of relative concentration are frequently used in empirical work yet these also suffer from certain drawbacks. These should be used as proxy measure for monopoly behaviour rather cautiously. Take a case where earlier there were six firms in the industry, but two firms quit and their market share (let us suppose) is distributed among the remaining four in such a way that each firm now is of a roughly equal size. The Lorenz Curve would move towards the line of equality, showing a fall in industrial concentration. But a fall in the number of firms from six to four increases the market (or monopoly) power of each firm?

Secondly, note a case where there is a duopoly in an industry and each of the two firms is of the same size. The Gini co-efficient in this case would be zero. Then compare this industry with one where the number of firms is 200, but each firm is of the same size. This again yields a Gini co-efficient of zero. Now the inadequacies of this measure of

concentration become clear. The market behaviour of an industry with a duopoly and one with 200 firms will not at all be identical. The former is a case of near monopoly.

5.   The Causes of Emergence of Seller Concentration:

Seller Concentration seems to be a widespread phenomenon in the industrialised countries. And in most of these countries, there has been a rise of seller concentration over time. That is the reason why it is argued that in the contemporary world oligopoly is the most generally prevalent form of market structure. Let us look at some of the data in this regard.

Great Britain has been the first country to experience an industrial revolution. What is the evidence on the extent of industrial concentration there? According to a govt. publication entitled statistics of Product Concentration of UK Manufacturers (1979) out of a surplus of 161 industries, in 40% industries, the largest five firms accounted for 60% or more of industry output and in nearly three-fourth of these 161 industries, the market share of largest five firms was 40% or more. Similar appears to be the case in other industrial economies. For example, K.D. George and T.S. Ward found (for 1975) that in EEC countries, taking all the manufacturing industries, the share of four largest firms in industry employment (as a weighted average) was 32% in U.K. 22% in W. Germany, 24% in France and 20% in Italy. In the U.S.A., it was found that in 1978, 4.43% of the manufacturing enterprises in a sample of 1977, accounted for as much as 7% of the total assets of the sample enterprises. All the evidence shows a high degree of industrial concentration.

The question then arises: What leads to the emergence of industrial concentration? The following are some of the important determinant causes of seller concentration.

(a) Corporate Growth:- In different countries there has been of tendency for the size of firms to grow over time. There are two mechanisms at work so far as expansion in the size of corporate enterprises in concerned: internal expansion and external expansion. The former is accounted for by the addition of manufacturing capacity by existing plants, plough-back of profits, competitive expansion of market share, and establishment of additional plants. But the mechanism of external expansion has also been a potent means of growth in size of firms and the consequent rise in seller concentration. The existing firms usually buy up other firms. This is called the process of acquisition, merges or amalgamation. Some aspects of this process shall be discussed in detail in the following lesson. Through this process the size of the firm grows horizontally (when competing firms are merged into a given firm), vertically (when firms engaged in preceding or succeeding stages of production are acquired), or through diversification (when firms operating in unrelated fields merge together). G. Walshe in his book Recent Trends in Monopoly in Great Britain (1974) estimates that in between 1958 and 1963 about 50% of the net increase in seller concentration in that country was accounted for by merger-based growth. However, as will be shown in the following lesson, despite the pervasiveness of mergers and acquisitions in causing rise in the size of corporations, these have not been eminently successful in helping the parent firms to improve their market performance. Internal expansion on the other hand has been found to increase efficiency and productivity and to stimulate competitiveness among large-sized firms.

(b) Cost Conditions:- Factors having a bearing on the cost conditions of firms also lead to the growth in size of firms. The following are the main factors to be considered in this regard.

(i) Economies of Scale:- When economies of scale are present in an industry, that is when the typical optimum size of a firm in the industry is fairly large, it is natural for large-sized firms to emerge. In such an industry each firm in the long run will vary the size of the plant with a view to attain the minimum efficient scale of production. B.A.G. Robinson in his book, *The Structure of Competitive Industry* has shown that the scale economies accrue to a firm from technical, financial, marketing and managerial sources. In some industries only the large-sized firms can enjoy these economies.

(ii) Technical Progress:- New techniques of production typically aim at increase in productivity (i.e. getting the same output from smaller inputs), or in other words, reduction in cost of production. Many a time, only a few firms have access to new techniques because of financial implications or other reasons. Such firms are in a position to increase their size through use of new techniques of production because of the cost-reducing effects of such techniques.

(iii) Vertical Integration:- Sometimes, firms engaged in preceding and succeeding stages of production merge with each other with a view to reduce their cost of production and to enjoy greater scale economies. Vertical Integration also helps firms to make their markets more secure. This may also encourage the merged firms to increase their investment and thus to further add to their size. Besides, if a single firm is formed through control of preceding and succeeding stages of production in an industry, new entry would be blocked to a great extent, thereby leaving the market free for exploitation by the vertically-linked firm.

(c) Market Size and Growth Rate:- The demand which firm faces in the market and its rate of growth over time also influences the emergence of seller concentration. The following patterns of demand growth have usually been observes.

(i) Fast Growth:- A fast growing market for a product may reduce competition because the existing firms will be better established and equipped to take advantage of the growing demand. But, on the other hand, a growing market is also fertile ground for the mushrooming of new firms. The former situation is more likely to prevail because it is easier for the existing firms to increase their market share in the face of rising demand than for the new entrants to get established in the market in competition with the existing ones.

(ii) Slow Growth or Falling Sales:- In this situation new firms will not like to enter such an industry. Even out of the existing firms some may leave it. Thus market concentration is very likely to increase in such circumstances.

(iii) Cyclical fluctuations in demand:- In industries facing such a demand pattern, new entry may be severely restricted. Existing firms have to device methods of combating fluctuations in demand. Only a few firms are likely to survive in such a market. Thus cyclical fluctuations in demand may also encourage seller concentration.

(d) Barriers to Entry:- Such barriers are defined as any obstacles which prevent new firms from engaging in production and sale of a commodity in a market. In Lesson 7 earlier, while studying the theory of Limit-Pricing, you have already become familiar with some of these entry barriers. There, several of these barriers to entry were noted. There is the product differentiation barrier which ensures consumer loyalty to the existing firms. There may also be

legal barriers to entry in the firm of license requirements or patents have been taken by the existing producers. Still another barrier is the absolute cost advantage enjoyed by the existing firms. This may flow from control over strategic inputs like skilled workers and managers, etc. The lower absolute cost of the existing firms will discourage the entry of potential rivals. Finally, the economies of scale enjoyed by existing firms is a potent barrier to entry. Sometimes the barriers are created by the existing firms in the form of limit pricing. The existing firms apprehending entry of new firms may reduce the price of the product to an entry inhibiting level.

It is clear that if the barriers to entry exist in any form, the size of the existing firms will be large will a high degree of seller concentration.

(e) Govt. Policy:- Govt. Policy in various forms also sometimes encourages market concentration. Through direct state intervention the govt. may nationalize certain industries or permit the establishment of new ones only in the public sector. This will govt. rise to a high degree of seller concentration, though the behaviour of public sector monopolies is not identically the same as that of private monopolies. Besides, govt. policy in other forms may also encourage market concentration. For instance, if a tax holiday is granted for undertaking additional investment, the larger firms would be encouraged to increase their size still further. Governments also sometimes prop up and encouraged industrial giants if such help can ensure international competitiveness of their products. Policy measure may also be adopted to amalgamate sick or how profit enterprises. Trade policies, such as protection to domestic industries also primarily helps the bigger firms to increase their share of the protected market.

(f) Chance of Random Factors:- It is recognized that although there are systematic economic factors at work which has led to the emergence of seller concentration, yet sometimes chance or random factors also cause the degree of competition among firms to decline or the market power of firms to increase. Break out of war may cause uncertainty, inhibit new investment and thus strengthen the position of the existing firms. Even if an industry starts with a large number of equal sized firms, with growth of market some firms will grow faster because of their internal dynamism than others. This will result in some firms attaining a dominant size and consequently enjoying market power. Even the systematic factors discussed earlier may work in favour of some more lucky firms than in the case of the other less lucky ones. Thus, chance and random factors in some situations may be really important in determining the pace of emergency of seller concentration.

6. Effects of Industrial Concentration

Microeconomics and industrial economics have paid very little attention to the analysis of effects of industrial concentration as such. But within the framework of the structure-conduct performance paradigm (model) which we discussed in the preceding lesson, the effects of industrial concentration clearly emerge. These effects are discussed below:

(i) Effects on Profitability:- Normally, it may be expected that the more concentrated an industry, the higher should be profitability in it. But in Britain, researchers have found (e.g. Whittington's article in Journal of Industrial Economics, 1980) that (i) there is a negative relationship between firm size and profitability, (ii) large firms experience less variability in their profits, and (iii) variability in profits declines with increase in industrial concentration. On

the other hand, K.W. Clarkson and R.L. Miller have referred to more than fifty studies on U.S. and Canadian industries were a majority of these studies support the hypothesis that in industries with higher concentration ratios the firms are enabled to obtain higher than normal rates of return than market structures with lower concentration ratios.

In this regard it has also been recognized in economic literature that empirical studies aiming at analyzing the seller concentration profitability relationship are marred by statistical and data problems. For example, in a market characterized by product differentiation one such problem may be which firms should be included and which excluded. Then the profitability measures used in most studies are based on accounting rather than economic concepts. Further, it is a positive relationship between degree or industrial concentration and profitability, yet more studies are needed to further confirm or refute this result.

(ii) Effects on Technological Change and Innovation:- In studies dealing with such an effect of industrial concentration, technological change, innovation, economic progress, productivity growth and R&D activity are taken to be concomitant changes. Joseph Schumpeter was perhaps the first economist who (in1912) had hypothesized that an entrepreneur in a monopoly position would have the right incentive to make innovations in the form of introduction of new products new techniques of production, etc. On the other hand, Kenneth Arrow (Rate and Direction and Incentive Activity, 1962) argues that a competitive situation provides better incentives for technical innovation. These positions on the relationship between market structure and innovations are, however, based on *a priori* reasoning. There are some empirical studies on the effects of industrial concentration on technical change and its other correlated referred to above. A Philips (in article in Journal of Industrial Economics, 1956) in his study covering the period 1899-1939, found a positive relationship between seller concentration and technological change. On the other hand, G.J. Stigler found this relationship to be inverse. Some other studies, notably by O.E. Williamson, W.S. Comanor and Creer and Rhoades broadly come to the same conclusion as Philips. Thus, whether on takes the *a priori* reasoning or empirical investigation, there is still no definiteness about the effects of industrial concentration on innovation, technical change or productivity increase.

(iii) Effect on Industrial Growth:- The term industrial growth refers to the rate of increase in output, employment or assets. The theory of monopoly and oligopoly predicts that firms working under these market conditions (that is, market structures characterised by relatively high degree of seller concentration) operate on the falling portions of their average cost curves and, therefore, such firms do not attain an optimum or supra-optimum size. In simple words, firms in such concentrated industries restrict output and thereby increase their profits.

Empirical studies on this question too come to divergent results. Philips, S. Hymer and P. Pashigian believe that there is no relationship between industrial concentration and growth rate of industries. On the other hand, studies by R.L. Nelson, D.R. Kamerschen and M. Marcus come to the conclusion that there is an inverse relationship between the two. So here again, there is still a lack of unanimity on the nature of the effect of industrial concentration on industrial growth.

(iv) Effect on Price-Cost Margins:- You would recall that under perfect competition (when market concentration is zero) price is equal to marginal cost in the short run and

marginal and average cost in the long run. However, as the degree of monopoly or industrial concentration increases, the price cost margin also increases. This margin accounts for monopoly profit in the long run. Some economists in fact argue that instead of studying that relationship between concentration and profitability, one should focus on the relationship between concentration and price-cost margins. Stigler and Chamberlin contend that effectiveness of collusion among firms is a measure of market power enjoyed by colluding firms and price-cost margins are a measure of the effectiveness of that collusion. Studies have, therefore, been undertaken to examine the relationship between concentration ratios and the average price-cost margin in the market.

H.P. Marvel in two articles (1976 and 1978) brought out the relationship between Herfindahl index and price-cost margin in gasoline market in U.S.A. and found the relation to be positive and significant. John Kwoka studies in (1979) the relationship between market share and price-cost margins for 314 manufacturing industries in the U.S.A. He found that increasing the market share of top two firms increased the price-cost margin, but when the share of the third firm was increased, the margin actually declined. Another study by J.V. Koch and R.N. Fenili (1971) found that concentration was not a significant determinant of price-cost margins.

It is thus clear from the analysis of effects of industrial concentration that the various studies on the subject come to conflicting conclusions. One interesting observation that follows the conflicting results of studies is that the various implications of monopoly and oligopolistics behaviour that are usually drawn from *a priori* logic are merely based on pure hunches. Most of these have no empirical basis. Incidently, this clearly brings out the utility of empirical research. The study of actual behaviour is necessary to confirm or to refute the conclusions that one may derive from deductive logic (i.e. conclusions drawn from mere theoretical reasoning).

Exercise

1.   Discuss Industrial Concentration.

2.   Discuss absolute measures of seller concentration in the market.

7.   Summary

As we discussed in traditional economic theory, the usual notion of a market situation is that of either perfect competition or large sized monopoly. However, the modern microeconomics and industrial economics recognize the fact that the dominant market structure in characterized by a small number of large firms usually selling a differentiated product i.e. differentiated oligopoly. Industrial or seller concentration refers extent to which output sales in a market are dominated by a few large firms. As we have discussed in the previous unit, industrial or seller concentration is an important characteristic of market structure. It plays an important role in the structure-conduct-performance model. The methods of measurement seller concentration includes the Concentration Ratio, the Herfindahl Index, and Gini co-efficient or Gini Concentration ratio (GCR). However, the Corporate Growth, Cost conditions, economies of scale, technical progress and vertical integration are some of the major causes of the emergence of seller concentration in the market.

8. Glossary

- **Concentration Ratio:** Concentration ratio refers to the percentage of market share taken up by the largest firms.

- **Economies of Scale:** Economies of Scale are cost advantages reaped by companies when production becomes sufficient.

- **Industrial Concentration:** Industrial Concentration refers to a structural characteristic of the business sector. It is the degree to which production in an industry or in the economy as a whole is dominated by a few large firms.

- **Vertical integration:** Vertical integration is the business arrangement in which a country controls different stages along the supply chain.

9. Answers to Self Check Exercise

Answer to Q1. Refer to Section 3.

Answer to Q2. Refer to Section 4.

10. References/Suggested Readings

- Clarkson, K.W., & Miller, R.L. (1983). Industrial Organisation: Theory, Evidence and Public Policy. McGraw-Hill.

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- Jones, T.T., & Cockril, T.A. (1984). Structure and Performance of Industries. Philip Allan.

- Sawyer, M.C. (1981). The Economics of Industries and Firms. Croom Helm.

11. Terminal Questions

Q1. Discuss the concept of Industrial Concentration and its significance in the business environment?

Q2. What do you mean by Seller Concentration? Discuss the methods of measurement of Seller Concentration.

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DIVERSIFICATION, INTEGRATION AND MERGERS IN INDUSTRY

STRUCTURE

1.   Introduction

In the traditional microeconomic theory and the theory of the firm, industry and markets that you have studied in the last few lessons, the usual or implicit assumptions start typical firm specialises in the production of a single product. However, in the real world situations, this may indeed be the case with some industries, yet they are strong economic reasons for firms to diversify their operation. Such diversification takes different forms, as you will notice in the present lesson and occurs under different situations and for different reasons. The question of diversification, integration and mergers, which is the subject matter of the present lesson, is indeed a particular dimension of the proud question discussed in the preceding two lessons, viz. industrial concentration and market structure. This discussion in this lesson is in fact an extension of the analysis of these preceding lessons.

2.   Learning Objectives

Upon completion of this lesson, you will be able to:-

- Understand the concept of diversification and measurement of diversification

- Identify the factors determining diversification

- Understand the concept of acquisition and merger in the context of business.

3. Analysis of Diversification

A multi-product firm is the wide-spread phenomenon in the contemporary corporate world. This phenomenon has had its theoretical impact in that the growth theory of growth of the firm is being built on the explicit premise of product diversification by the firms. How pervasive is this phenomenon? Studies by M.C. Sawyer, L.R. Amey and J. Hassid for U.K. show that in that country in 1958 and 1968 nearly 14 to 19 percent of aggregate output was being produced under conditions of diversification. This raises the question of measurement of the extent of diversification. For this we, first of all, need to define diversification. L.R. Amey defines diversification as "the spreading of its operations by a business over dissimilar economic activities". Although defining diversification poses several conceptual and statistical problems, yet one may roughly define it as a situation where a firm produces and/or supplies a number of different products or services.

Diversification is the opposite of specialisation. A firm may attempt to produce more than one product and thus diversify its activities.

(a) Measurement of diversification:

Having defined diversification, the question then arises: How do we measure it?

There are usually two approaches to measuring diversification: (i) estimation of the proportion of activity undertaken outside the diversified firm's main or primary industry, and (ii) estimation of the number of industries in which they diversified firm operates.

For measuring diversification under approach (i) the following formula may be used:-

$$D_D = \sum_{i=1}^{n} wipi$$

where D_D = degree of diversification, i = product or industry, wi = weight attached to each of i products (which are n in number) in the industries where the firm operates, and pi = the share of the ith product in the firm's operations. In simple words, according to approach (i) the degree of diversification of a firm depends on the share of different products produced by it and its relative share in the industries within which each of the products produced falls

For measuring diversification under approach (ii) several indices, such as Gort's index; Berry's index and the Entropy index etc. are used. According to C.H. Berry's (article in Journal of Law and Economics, 1971), the Herfindahl index can be used for measuring the degree of diversification as below:

$$D_D = \sum_{i=1}^{n} (pi)^2$$

where pi is the ratio of the diversified firm's output or sales in the ith industry to the firm's total output or sales (where i = 1, 2…….n). It is clear from the foregoing that in the case of a single product firm.

$$\sum_{i=1}^{n} (pi)^2 = 1$$

and thus the value of D_D = 0. As the number of goods produced by the firm rises it starts operating in several industries and therefore, the values of D_D will continue increasing, with its value approaching unity as n approaches infinity.

(b)   Extent of Diversification

Interest in finding out the extent or degree of diversification in the industrial economy is developed only in the 1960s. In this respect, W. Gort's was the first study relating to extent of diversification in American industry published in 1962. It was followed by L.R. Amey study relating to U.K. industries. Since then several studies have been conducted, notably by C.H. Berry (1971) and M.A. Button (1977). These studies have by and large concluded that diversification is an important and growing phenomenon. Diversification appeared to the particularly characteristic of the large firms. Gort for the U.S.A. and Amey for U.K. found a strong association between diversification and firm size. As noted earlier, Amey, Sawyer and Hassid have shown that in U.K. between 1958 and 1968 the extent of diversification varied between 14% and 19%.

(c)   Reasons for and Determinants of Diversification

Now, the question arises: why do firms especially large firms try to diversify rather than specialise in a particular product? There are several determinants of diversification some of which are as below:

(i) Profitability:- Obviously you firms try to diversify in order to enhance their profitability. Separate monopolies have been known to merge into one firm if they find that their products are close substitutes. Separately, the price of policy of one will affect the sales of the other, because of a positive cross-elasticity of demand between their products. Formation of a single firm permits joint price-setting so as to increase profits. Diversification permits use of fixed factors of production more intensively and economically with in turn leads to a higher level of profits.

(ii) Stability:- Business usually operate in an environment of uncertainty and instability. The latter is caused by cyclical changes in demand, prices, profitability, etc. However, all profits are not affected identically by these cyclical changes. So to spread the risk arising out of these fluctuations the firms may attempt to diversify. Besides, Specialisation in a single product exposes the firm to the uncertainties of changes in consumer preference, degree of competition, threat of entry, changes in technology, etc. Therefore, pursuit of stability may be a reason by why firms try to diversify. Sometimes they follow the golden rule: don't put all your eggs in one basket.

(iii) Growth:- It is seen that firms sometimes feel constrained due to one reason or the other to expand in the same line of production. But growth mean in fact be one of the objectives of the firm. E.E. Penrose in her book *The Theory of the Growth* of the firm argues that diversification is the normal way in which firms grow primarily as a reaction to the saturation of demand for their existing product. Through diversification firms may overcome problems of constraint on their growth – problems which may be external to the firm, such as increasing competition in the existing line of production, rise in the cost of a particular input, declining demand for the existing products, etc.

(iv) Tax Advantages:- Roger Sherman (article in National Tax Journal, Dec. 1972) contends that certain tax incentives, which are available to diversified forms in enable forms to attract equity capital at lower cost. If such tax incentives are available (e.g. a tax holiday in new line of production for a few years) public could be attracted to buy shares of such diversified companies. Diversified firms are also in a better position to reduce their tax liabilities through internal manoeuvring of funds between different lines of production.

Which of the following factors actually accounts for diversification in the real world is a question which has been in empirically studied by L.R. Amey, P.K. Coracki, J. Hassid and M.A. Utton, who all used Census of Production data of U.K. Their studies, however, throw up conflicting hypotheses on the relative importance of the foregoing factors. To take just one example, while Amey finds no clear association between diversification and growth, Hassid has found an unambiguous relationship between the two.

4.   Acquisition and Mergers

In the foregoing analysis of diversification and impression might have been created that a specialised firm gradually adds new goods to its product-mix during the process of diversification. Such internal process is just one aspect of diversification of firms. Another is through the external process. A specialised firm may become diversified through what is called acquisition and mergers. Acquisition refers to those cases where one firm purchases another firm from its shareholders and thus diversifies at production. Merger on the other hand refers to those cases where two or more companies come together to set up an entirely new joint stock company.

According to M.C. Sawyer, in industrial economies, notably U.K. and the U.S.A. mergers are small in number relatively to the acquisitions. But the phenomenon seems to be quite pervasive. For example, in U.K., The annual number of mergers and acquisitions between 1963 and 1983 varied between the low figure of 315 and a high of 1210. Although, as noted just now, acquisitions are more frequent than mergers, it is the latter word, which is used to cover both acquisitions and mergers, and in the following paragraphs mergers will also include acquisitions.

(a) Types of Mergers:- The different types of mergers are divided into three categories as below:-

(i) Horizontal Integration:- This type of mergers among firms is also referred to as lateral integration. It involves combination of firms producing and selling a similar commodity. If independent firms producing steel products are merged to form a firm it is called horizontal or lateral integration. Formation of cartels and similar other collusive action falls under the category of horizontal integration. This horizontal integration takes place among firms for the products of which cross elasticity of demand is high.

(ii) Conglomerate Mergers:- Such integration takes place among firms which had been independently producing altogether different products before merger. For example, If firms producing cloth, steel and sugar and merge to together to form a bigger firm it would be called conglomerate merger or integration. It is clear that it is merely the desire to diversify

that will lead to conglomerate merger. In this case the cross elasticity of demand for the products of merging firms would be zero.

(iii) Vertical Integration:- There are firms which are in the successive stages of production. An instance is the iron ore producing firm, a steel mill and a machine making firm. The first supplies inputs to the second and in turn the second supplies inputs to the third firm. If such firms merge together or one firm acquires the other, it would be a case of vertical integration. This form of mergers will be discussed in greater detail in the next section.

(b) Causes of Mergers and Acquisitions:- As has been noted earlier, mergers and acquisitions take place quite frequently in the industrial economies. Given such an empirical reality, the question is: why do firms usually integrate? There are several explanations which are placed on *a priori* reasoning (i.e. on general theoretical considerations), empirical evidence and behavioural theories. Before we discuss the causes of Mergers (including acquisitions) bellow, it is worth nothing that there are also severally theories which are put forward as the explanations of why mergers (and especially acquisitions) take place. The first is the Neo-classical Theory which says that if the discounted future expected earning of a firm (called the potential victim because it may be brought up by another firm) are higher to the acquirer firm than to its present owners, the former will be merged with the latter. Secondly, from Marris's theory of managerial Capitalism, two theories of acquisition emerge. According to one, when managers of a firm in their pursuit of faster growth retain more profits than they pay out as dividends, the firm's valuation ratio (the ratio of market value of its shares to the book value of its capital) declines. Such a firm becomes a victim of acquisition. The second implication for acquisitions flowing from Marris's theory is that the pursuit of managerial interests lies behind many acquisitions.

On the foregoing and other (empirical) grounds the following may be considered to be the reasons for mergers:

(i) 'Synergistic' effects:- The traditional theory assumes profit maximisation as the objective of firms. Within the framework if firms can merge with a view to increase monopoly profits or to enjoy greater economies of scale, profit liability of the firm can be enhanced. 'Synergistic' effects mean the meshing together of firms in such a way that their profits after merger are higher than their pre-merger combined profits. Such effects were imply pursuit of monopoly power and profits as the driving force behind mergers.

On this hypothesis, empirical evidence is conflicting. While R. Nelson's study supports this explanation in majority of the cases examined by him, the empirical investigations of J.W. Markham and M. Cort find very little evidence in its support.

(ii) Merger for growth:- Marris, Penrose (both referred to earlier in this lesson) and D.C. Mueller have built up theories to explain mergers in terms of pursuit of growth as the object of the firm. If the managers find the going difficult while increasing the size of their form in their specialised area of production they will seek the solution of this constraint on growth through merger with or acquisition of other firms. The hypothesis has also been out to an empirical test by S. Reid (Mergers, Managers and the Economy, 1963). He particularly tried to answer the question whether firms merge for profitability or for growth. His study suggests that merger tends to be for growth, not for profitability. At the same time he also finds

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evidence (from U.S. data) to the effect that non-emerging firms grew faster than firms with the low merger intensity, although slower than firms with high merger intensity. This empirical support is neither accurate non unambiguous.

(iii) **Tax avoidance:-** It is also hypothesised that forms merge together in order to reduce tax liability. This may especially happen among firms where some of them are highly profitable while others have been making losses. The former may acquire the latter so that the polling of profits would considerably reduce the former's tax liability. Taxation may thus be the ground for merger among firms.

(iv) **Business Cycle and Stock Market:-** According to some researchers business cycles and merger cycles synchronise. Therefore, the former is held to be the cause of the latter. On this question, empirical evidence is conflicting. While R. Nelson finds strong support for such an association with the help of data for the period 1895-1956, Markham finds little support for it. Besides, it is also hypothesised that there is a close association between merger activity and behaviour of share prices of firms in the stock market. It is argued that the promoters of the acquiring firms hope to reap high returns through acquisition of firms who share prices are rising. Markham considers this as the most important cause of merger activity. R. Nelson, however, considers stock market behaviour as the proximate and not as the ultimate explanation of mergers.

(v) **Reduction of Business Uncertainty and Rivalry:-** According to this explanation of mergers it is argued that merging of firms with other is a purely defensive move of the firms with a view to reduce uncertainty through greater control over the environment in which they operate. There is in a fact two-way relationship between mergers and uncertainty. As uncertainty increases in the business world, a wave of mergers appears in the form of actually executed mergers and contemplated mergers. But merger activity itself generates further uncertainty. This rise in uncertainty may make the firm hesitate to merge. All this is considered to be a permanent feature of the business environment. While uncertainty is offered as explanation of mergers by G. Newbould (Management and Merger Activity, 1970), Aaronovitch and Sawyer find a strong association between oligopolistic rivalry and merger activity.

(c) **Effects of Acquisitions and Mergers:-** With the help of empirical evidence, economists have tried to examine the impact of mergers and acquisitions on such important economic variables as profitability, efficiency, growth, etc. The main effects of mergers and acquisitions, emerging from such empirical studies are as below:-

(i) **Profitability:-** Regarding profitability effect of mergers, studies using U.S. data have been summarised by M.A. Utton (article in Scottish Journal of Political Economy, 1974) and G. Meeks (Disappointing Marriage: A Study of the Gains from Mergers, 1977). Their main conclusion is that mergers do not improve the profitability performance of firms. It was noted that out of 13 studies summarised by Utton, six reported no change in profitability after merger, five reported a decline profitability and only two noted an improvement. Both Utton and Meeks also examined U.K. data to study the profitability effect of mergers. While the former took a sample of 39 U.K. companies which were involved in mergers in the period 1961-65, the latter studied the case of 233 acquisitions in U.K. in the period 1964-72. Utton

found no evidence of a superior profitability performance after the mergers. Meeks found a mild but a definite in the profile acquiring firms.

(ii) Efficiency:- It may be asked why the question of efficiency should be taken separately when profitability is itself an index of increased efficiency. In order to answer this question it should be understood that profitability does not change necessarily due to a change in efficiency. In fact, profitability may rise because of exploitation of workers or consumers through the exercise of monopoly power. Mergers and acquisitions doing trees in monopoly power of the post-merger firm.

Efficiency on the other hand, can be thought of in terms of utilisation of assets and other fixed factors of production. One may start from the premise, that the motive for mergers is better utilisation of the poorly used assets of the acquired on merged firms, resulting in a rise in productivity and thus efficiency. A Study by K. Collinear and others (Mergers and Economic Performance, 1989) examined some cases of acquisitions in the 1966-69 period. They found a wide diversity in the performance of such firms and came to the conclusion that "efficiency Gains from Mergers are in general not found".

(iii) Growth:- Growth may be measured in terms of increase in output or greater accumulation of assets. After merger and acquisition of a may be better able to exploit market opportunities so as to increase its market share and output growth. Alternatively, it may be argued that a bigger firm is in a better position, through external finance or plough-back of its own profits, to accumulate fixed assets at a faster rate.

Again, this question was empirically investigated by Aaronovitch and Sawyer (1975) and Meeks (1977). The former finds that small proportion of firms (one-fourth to one-third) engaged in acquisitions during 1958-68 clearly slowly growth which could be ascribed to acquisitions. This, however, means that the growth impact of mergers and acquisitions emerges only in a minority of cases. Meeks, on the other hand, found that over the period 1948 to 1964 internal factors were subsequently more important for growth of firms than external factors (i.e. mergers and acquisitions). But in the 1864 to 1970 period, the latter was more important, though any marginally. Thus, the evidence on this effect of mergers is not very conclusive.

(iv) Seller concentration:- It seems rather obvious to argue that mergers would increase market or seller concentration, which in seen in terms of increased market share and market power of firms, as you noted earlier in the preceding lesson. However, there are mitigating factors to show that mergers may not necessarily lead to increased market concentration. For example, If it an industry there were 100 firms of different sizes, some small, other large, before merger and they decide to merge into five nearly equal sized large firms, it is obvious that the concentration ratio would decline instead of rising

But the important question is: what has been the actual experience in the industries and sectors characterised by mergers? Evidence is available both for the U.S.A and U.K., L.W. Weiss (article in Review of Economics and Statistics, 1965) took the U.S. data for the 1930 to 1960 period. He found that mergers were not a more important factors contributing to increase in industrial concentration, compared to some other factors. But K.D. George (1975) found that in U.K. largest increases in industrial concentration in the 1960s took place in

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those sectors where merger activity had been most intense. Other studies based on British experience, notably by Hart, Utton and Walshe (1973). Hannah and Kay (1977) and Utton (1971) come to the generally conclusion that the effect of British acquisitions has played an important role in increasing market concentration.

5.   Vertical Integration:

Vertical Integration is a particular form of merger among firms with a view to diversify their activities of to achieve other objectives. This particular form of integers usually takes place among firms at different stages of production of the same good. Thus it is a merger of one firm with the other from which either it buys its inputs or to which it sells its output. When merger takes place in the direction of supplies, i.e. a firm merges with another firm which supplies raw materials or fuel to it, this form of merger is referred to as *backward vertical integration*. An example is the merger of steel mill with a coal mining or iron ore mining firm. On the other hand and, when merger takes place for the sake of acquiring facilities for distribution, processing or fabrication, it is called *forward vertical integration*. For instance, the steel mill may merge with a machine-making firm. It would thus be noted that vertical integration takes place among firms which are in the successive stages of production of the same good.

(a) Measurement of Vertical Integration:- Usually either of the following two methods is used to measure vertical integration:-

(i) Ratio of Value-added to sales:- This method suggested by M. Adelman is based on the hypothesis that the more vertically integrated a firm is the higher is this ratio. Therefore, the measure of vertical integration becomes

$$VI = \sum_{i=1}^{n} VAi \Big/ \sum_{i=1}^{n} S_i$$

where VI = degree of vertical integration, VA = value added, and S = Total sales, Value added is defined as the total sales of a firm minus its expenditure on purchases from other firms.

The idea behind this measure is that if most of the inputs, including raw materials, fuel, etc. are purchased by the firm from outside sources (i.e. other firms) the former less vertically integrated. Conversely, if the firm is vertically integrated with all the erstwhile firms supplying inputs (i.e. all such firms have been merged with it), it buys nothing from other firms and its value-added will be very high, approaching the value of sales. In the latter case, both the numerator and the denominator being nearly equal, the value of the ratio will be about unity. The ratio falls below unity as the degree of vertical integration declines. An obvious drawback of this measure

$$VI = \sum_{i=1}^{n} li \Big/ \sum_{i=1}^{n} S_i$$

where *I* = value of goods in stocks (or inventories).

The idea behind this measure is that in the case of a firm which is merged with other firms through backward and forward vertical integration will of necessity, have to build up more stocks of inventories of raw materials, fuels and its own product, than a firm which buys its inputs from and sells its output to other independent firms. Vertically integrated firm would thus show a high value of this ratio. However, it is pointed out that vertical integration may in fact by motivated by the desire to economics the holding of stocks since more stocks mean greater locking up of funds. Besides, the ratio may change when input and output prices change at different rates, though in reality the degree of vertical integration remains constant.

Degree of backward and forward vertical integration can also be measured. You may look up these measures in Reading No. 1 of the lesson.

(b) Reasons for Vertical Integration:- Some of the motives for vertical integration are as below:

(i) Increasing monopoly power:- Vertical integration enables a firm to increase its monopoly power. This may in fact be the ultimate motive, though it may manifest itself in other more immediate but rather subtle forms. The firm may try to foreclose sources of raw material or fuels to the potential or actual rivals through backward vertical integration. It may thus be used as a device to prevent entry. Sometimes a firm may like to get rid of its existing competitors which are unco-operative in the matter of ongoing a collusion with the former. In order to squeeze out such rivals, a firm may vertically integrate with other firms which are the only sources of raw material, fuel, etc. to all the firms in that industry. Alternatively, the motive of vertical integration may be to increase market power which is usually a function of the size of a firm. Thus, reduction of actual or potential competition and increase in monopoly power may be the reasons behind vertical integration.

(ii) To internalise external economies:- Sometimes the production of a good or service may generate external economies. Such economies are defined as increase in the profits of an industry as a result of the operations of an altogether different industry. An example is the fall in the cost of production and a consequent rise in the profits of industries in a region after a new railway line becomes operational in that region and as a result the cost of transportation declines. Another example is the discovery and subsequent development of coal mines in a country whose iron and steel mills were earlier importing coal from distant and relatively costly sources. Thus, the coal mining industry creates an external economy for the iron and steel industry. Now, the former cannot claim any share in the incremental profits made by firms in a different industry, firms may vertically integrate just as in the case of our example of coal mining firms and iron and steel mills.

(iii) To reduce uncertainty and ensure security:- Business world is full of uncertainties which emanate from different sources. One of these sources of uncertainty and the resultant insecurity may be output restriction policies of the firm supplying raw material, or likelihood of the firm buying the output of a given firm as an input. In these cases backward and forward vertical integration will reduce insecurity and uncertainty of the firm which was the victim of uncertainty generated by the inefficiencies of the other but allied firms. Thus, the motive in such cases may be to become more secure through vertical integration.

(iv) To reap technological and marketing economies:- Sometimes the firms are technologically interlinked. The example is the firms manufacturing parts and the firm which

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assembles those parts. In such cases sometimes there are technological economies to be reaped through, for example, a better coordination between the rate of production of parts and the final product comprising these parts. Another possibility is that firms at successive stages of production of the same good (e.g. yarn and cloth) may have several marketing may be in advertising, salesmanship, transportation, etc. Thus, firms may vertically integrate in order to reap such economies.

(c) Effects of Vertical Integration:- The effects of vertical integration are usually traced on three important micro-economic variables, viz. price, output and costs. The effects on such variables are discussed below:

(i) Effects on Price and Output:- Since Price and Output are normally inter-related variable, these may be considered together. In order to analyse effects of vertical integration on price and output, it may be assumed that the cost effects are absent. Three separate situations may be visualised and for each these effects may be noticed.

The first situation is where vertical integration takes place between firms, one of which is a monopolist and the other is operating under perfect competition. And additionally assume that factor proportions are fixed. In this case too, the price and output effects of vertical integration will be absent. If, for example, a monopolist enters into back vertical integration with a perfectly competitive firm, again the price does not change (because the firm, whether independent or integrated, still continues to be a price-taker) and hence output also remains unchanged. For the monopolist also, nothing warrants to bring about a change in his price or output, because of him the price and the quantity of input remains the same as before.

A third case may be where vertical integration takes place between a monopolist at stage one of production and firms operating under perfect competition at a subsequent stage of production. In the latter case, it is further assumed that production is subject to variation in factor proportions. In this case it is clear that the competitive firms which were earlier buying input from a monopolist at a monopoly (higher) price will substitute (under variable factor proportions assumption) such input with a lower-priced input. This will reduce over-all costs at this second stage of production and thus help in lowering the price of the final product. Price fall will result in increased sale and output.

(ii) Effects on Costs:- You would recall that in the foregoing case we had assumed the cost effects of vertical integration to be absent. If now we remove this assumption and are able to demonstrate that vertical integration indeed results in cost reduction, then price fall and output growth will inevitably follow.

Various types of cost reduction effects of vertical integration may be noted. Firstly, there may be reduction in operating costs, like saving in fuel, transportation costs, advertisement expenditure, etc. Secondly, if the input supplying firm was earlier, a monopolist, vertical integration with such a firm may eliminate the monopoly price element from the input price of the now integrated firm. Thirdly, modern economists have referred to some other forms of cost saving which results from vertical integration. For instance, R.H. Coase refers to saving in information gathering regarding the activities of the other allied firms so as to minimise uncertainty. Any agreement between them involves contract costs.

These are called transaction costs which the whole, there may be cost effects of vertical integration

Exercise

1.   What is diversification? How does it benefit companies in terms of risk management?

2.   Distinguish between acquisition and merger.

6.   Summary

In the previous units, we have discussed the traditional microeconomics theory and the theory of firm, industry and market. The usual and implicit assumption is that a typical firm specializes in the production of a single product. However, in the real world, there are some strong economic reasons for the firms to diversify their operations of diversification, integration and mergers. The firms try to diversify their operations to enhance their profitability, stability and growth and to take benefits of some tax advantages. Another aspect of diversification in acquisition and mergers. A specialized firm may become diversified through acquisition and merger. Acquisition refers to those cases where one firm purchases another firm form its shareholders and thus diversifies its production. Merger on the other hand refers to those cases where two or more companies come together to set up an entirely joint stock company. Vertical Integration is a particular form of merger that usually takes place among firms at different stages of the same good.

7.   Glossary

* **Acquisition:** An Acquisition is a business transaction that occurs when one company purchases and gains control over another company.

* **Diversification:** Diversification refers to the strategic expansion of a company into new products, services, or markets to reduce risk, capture new opportunities and enhance overall resilience.

* **Horizontal Integration:** Horizontal Integration happens when one firm acquires another firm operating in the same industry or producing the same line of products.

* **Merger:** A merger is a business deal where two existing independent companies combine to form a new singular legal entity.

* **Seller Concentration:** Seller Concentration refers to the number of seller in an industry together with their comparative shares of industry sales.

* **Vertical Integration:** Vertical Integration in a strategy that allows a company to streamline its operations by taking direct ownership of various stages of its production process rather than relying on external contractors or suppliers.

8.   Answers to Self Check Exercise

Answer to Q1 Refer to Section 1&3.

Answer to Q2 Refer to Section 4.

9. References/Suggested Readings

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10. Terminal Questions

Q1. What are the key determinants behind a company's decision to pursue diversification in its business activity?

Q2. Define acquisition and merger. What potential effects do these strategic moves have on companies involved?

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LESSON-13

MONOPOLY AND INDUSTRIAL CONCENTRATION IN INDIA

STRUCTURE

1.   Introduction

2.   Learning Objectives

3.   Extent of monopoly and industrial concentration

4.   Need for control of monopoly and industrial concentration

5.   Policy Measures adopted to control monopoly and concentration

6.   Summary

7.   Glossary

8.   Answers to Self Check Exercises

9.   References/Suggested Readings

10.   Terminal Questions

1.   Introduction

The preceding three lessons have dealt with the broad issue of monopoly, industrial concentration and mergers, etc. In these respects, we now turn our attention to the existence of monopoly and industrial concentration in India, in the present lesson. In the 1950s, our country started pursuing the goal of establishment of a socialist pattern of society. In this context, therefore, it became necessary for the policy-makers to adopt measures to curb monopoly and industrial concentration. During the Nehru era, reduction in inequalities, control of monopoly, and checking industrial concentration became an important component of the policy-making process. In the present lesson, we shall first of all try to assess the extent of monopoly and industrial concentration in India, and then we shall notice that what has been the nature pf public policy towards this socio-economic phenomenon.

2.   Learning Objectives

After going through this lesson, you will be able to:-

- Understand the concept of monopoly and industrial concentration in India.

- Explore regulatory measures and government policies adopted to control monopoly and concentration.

3.   Extent of monopoly and industrial concentration

The industrial policy of the 1950s and the 1960s as well as the over-all policy regime of this period in India was strongly oriented towards regulating private sector industry so that economic inequalities in general and monopoly and industrial concentration in particular could be kept under check. Due to such an orientation of the policy framework of this period, and in fact of the subsequent period extending roughly up to the mid-1970s, various studies by individual researchers, research organisations and official agencies focused on the extent of monopoly and industrial concentration in India. For this period, there are several estimates available which show the extent of monopoly and seller concentration in Indian industry. We shall discuss some of these below. However, since the mid-1970s and particularly in the 1990s, as a result of policy reversal in this respect, going now by the names of liberalisation and privatisation, the policy framework has ceased being much concerned about control of monopoly and industrial concentration in the country. That is why it is somewhat difficult to come by any meaningful estimates of the extent of monopoly and concentration in India for the 1980s and the 1990s.

Before taking up the discussion of extent of monopoly and industrial concentration in India, let us acquaint ourselves with the *forms* in which this phenomenon has been visualized and looked at in various studies. Thus, monopoly, industrial concentration or concentration of economic power have been viewed in various studies as interlinked phenomena and these are manifested in the following forms:-

(a) Concentration of ownership:- In the past, some (usually 20) top business houses were identified and the extent of shares of value of assets owned by them indifferent industries as well as its ratio to total value of industrial assets in the country was estimated. These industrial houses were also referred to as monopoly houses by certain researchers since they represented the monopolisation of industrial assets and through these the industrial output. The industrial houses which have usually figured in the list of the top 20 businesses are such names as Birlas, Tatas, Bangurs Thapars, etc.

(b) Concentration of Industrial Control:- Another form of monopoly and industrial concentration are viewed in India is what is called inter-locking of directorates. The control of an industrial enterprise is vested in the board of directors of the company. It has been observed that in many cases, a single person gets elected as the director of several companies. Through this mechanism, the directorships and the control of these otherwise independent companies get interlocked. This indeed is a method of concentrating control of industries in the hands of a few influential persons. This is a manifestation of monopoly of industrial control and centralisation of economic power.

(c) Concentration of production:- This is what was termed in the preceding lesson as seller concentration. Concentration of production takes place in an oligopolistic market where only a few large firms rule the roost. Because each firm supplies a significant share of the total output of the industry concentration of production in the hands of a few firms takes place. This has also been referred to as product-wise concentration in India.

Coming now to the extent of monopoly and industrial concentration in India, the earliest attempt in this respect was made by Mahalanobis Committee (1961) which had

estimated that in 1951, twenty leading business groups had an interest of one kind or another in as many as 983 companies with a share capital of Rs. 352 crore. According to the Committee, at the end of ten years of planning in the country, an excessive industrial concentration had occurred in the hands of few persons in the private sector. Since the government of the time was committed to the establishment of a socialist pattern of society in the country, it set up a Monopolies Inquiry Commission in April 1964, to go into the question of extent of monopoly and concentration of economic power in private hands. The Commission submitted its report in two volumes in 1965.

The Commission studied monopoly and industrial concentration in India in the following two forms:-

(a) Product-Wise Concentration:- The Commission studied the phenomenon of prevalence of oligopoly in Indian Industry, showing how the articles of common consumption were being supplied in each industry by a few dominant firms. The Commission studied the percentage share of three top enterprises in the total industrial output of some important commodities, as shown in Table 1. The Commission in fact selected 100 products from the point of view of their importance to the ordinary consumer and estimated their concentration ratios. The ratios shown in Table 1. are only for the conventional necessaries and medicines.

TABLE 1.

Product-wise Concentration (1961)

Name of the Product	No. of enterprises	Percentage share of top 3 enterprises
Conventional Necessaries:		
1. Matches	2	100.00
2. Soap	52	77.5
3. Leather Footwear (indigenous type)	4	99.9
4. Leather Footwear (western type)	8	98.9
5. Rubber & Canvas Footwear	16	75.2
6. Toothpaste	8	77.6
7. Talcum Powder	19	76.7
8. Razor Blades	5	95.9
9. Cigarettes	9	83.3

Medicines:	1	100.0
1. Sulpha pyridine	2	100.0
2. Sulphasomidine	2	100.0
3. Sulphadiazine	2	100.0
4. Sulphatluazole	2	100.0
5. Chloramphenicol	2	100.0
6. Penicillin	2	100.0
7. Streptomycin	2	100.0
8. Vitamin A	2	100.0
9. Vitamin B6	2	100.0
10. Vitamin B12	2	100.0
11. Vitamin C		

It would be noted in the Table that the share of the largest three producers was found to be nearly 100 percent in most conventional necessaries and it was 100 percent in all the medicines. Important as all these items of consumption are for the ordinary consumers, their production was concentrated in the hands of a couple of producers in each of these industries. Thus, the Commission found most Indian industries to be highly oligopolistic where price, output or both could be manipulated by the firms to the common detriment.

Besides product-wise concentration, the Monopolies Inquiry Commission also studied the extent of country-wise.

Concentration in India. This was also referred to as inter-industries concentration. This was defined as the share of each dominant business group in the assets of different industries in the country. A business group was taken "to comprise all such concerns which are subject to the ultimate decision-making power of controlling interest in the group - the group master."

The Commission obtained data regarding 2259 companies and prepared a final list of 75 dominant business groups. The assets of all these 75 groups, owned by them in as many as 1536 companies, amounted to Rs.2605 Crore. Table 2 below provides fuller details of country-wise concentration in respect of the top-most 5 out of a total of 75 of the dominant business houses in the country.

TABLE 2.

Country-wise Concentration (1961)

Rank	Name of Business Group	Total No. of Companies in the Group	Total No. of Companies with not less than Rs. 1 crore assets	Total assets of Companies in column 4 (Rs. in crore)
1	2	3	4	5
1.	Tatas	53	27	385
2.	Birlas	151	54	271.0
3.	Martin Burn	21	9	144.7
4.	Bangur	81	15	58.4
5.	A.C.C	5	3	76.0

The data in Table 2. above shows that in early 1960s, the Tatas were the biggest business group in the country. There were 53 companies in the group out of which 27 companies owned assets worth more than Rs. 1 crore each and their total assets amounted to Rs. 385 crore. The group was the biggest in terms of the last-mentioned figure. Birlas controlled even larger number of companies, although, these owned assets of smaller worth.

The Monopolies Inquiry Commission provided information for the year 1961. Studies of R.J. Hazari and the Industries Licensing Policy Inquiry Committee (Dutt Committee) had also dealt with the question of monopoly and industries concentration in India for that early period. Some information in this regard is also available for the 1970s and the 1980s. The concepts of monopoly and industries concentration in India were also changed a little for this later period. Nirmal K. Chandra used the concepts of aggregate concentration and disaggregate concentration. The former was defined as the ratio of assets of top twenty business houses to assets of the entire private corporate sector, while the latter term was used for product-wise concentration or seller concentration.

According to N.K. Chandra the share of top twenty industries houses in the total assets of the entire private corporate sector was 61.45% in 1972, which further increased to about 71% in 1983. This shows a relatively high degree of concentration of economic power in the industries sector of the country. It could also be seen as the monopolisation of industrial activity by a handful of industrialists. These top 20 industrial houses, which were also referred to as monopoly business houses during this period further consolidated their position during the 1980s, as is clear from data in Table 3.

TABLE. 3

Monopoly and Aggregate Concentration in India in 1980s

S. No.	Name of Industrial House	Number of undertakings controlled	Value of assets (Rs. in crore)	
			1980	**1989-90**
1.	Tata	85	1539	8531
2.	Birla	66	1431	8573
3.	Reliance	15	176	3600
4.	Thaper	49	348	2177
5.	J.K. Singhania	62	413	2139
6.	Larsen and Toubro	7	216	1682
7.	Modi	44	199	1399
8.	Bajaj	34	179	1377
9.	Mufatlal	44	427	1377
10.	M.A. Chidambaram	35	44	1373
11.	Hindustan Liver	16	_	1209
12.	United Breweries	47	_	1189
13.	T.V.S. Lyenger	39	_	1177
14.	I.T.C.	17	_	965
15.	Shri Ram	28	_	934
16.	A.C.C.	7	_	903
17.	Oswal	3	_	870
18.	Mahindra	9	_	774
19.	Essar	12	_	756
20.	Kirloskar	27	_	736

It would be seen in Table 3. that these top 20 industrial houses owned/controlled as many as 558 firms in the country in 1989-90. The aggregate value of assets owned by these

firms amounted to Rs. 41635 crore Further, it would be noted in the Table that the value of assets of top ten out of the 20 business houses increased by a little over eight times. The comparative figures for the remaining ten, for the year 1980, are unfortunately not available. Interestingly, the value of assets of Reliance (which in the late 1990s is the biggest industrial house of the country) multiplied by as much as 20 times. Over-all, it is clear from figure in the Table that the decade of the 1980s was a period of increasing monopolisation and industrial concentration in the country.

Now, let us take up the extent of industrial concentration of *disaggregate concentration in the country. A World Bank study entitled India, Industrial Regulatory Policy Study,* 1986, provides the data on this aspect industrial concentration in the country for the years 1976 and 1983. These data are reproduced in Table 4 here ahead.

TABLE. 4

Concentration Levels in Selected Industries

S. No	Product Category	Percentage share of largest four firms in industry output		
		1976	1983	Change (%)
1.	Acrylic fibre	100	100	0
2.	Newsprint	100	100	0
3.	Pig iron	100	100	0
4.	Jeeps	100	100	0
5.	Motor Cycles	100	97	-3
6.	Cars	100	100	-0
7.	Three-Wheelers	96	93	-3
8.	Malted foods	98	93	0
9.	Cigarettes	96	96	0
10.	Commercial vehicles	93	95	2
11.	Soaps	86	94	8
12.	Soda ash	100	91	-9
13.	Polyester fibre	100	90	-10
14.	Boilers	80	83	8
15.	Baby milk products	79	84	5

16.	Nylon yarn	100	84	-16
17.	Detergents	88	82	-6
18.	Dry cells	66	80	14
19.	Viscose fibre	69	80	11
20.	Ball/roller bearings	76	74	-2
21.	Cement machinery	89	73	-16
22.	Dyes	75	72	-3
23.	Electric motors	48	68	20
24.	Auto tyres	35	61	26
25.	Agricultural machinery	54	56	2
26.	Textile machinery	42	53	11
27.	Cement	60	41	-19
28.	Vanaspati	25	30	4
29.	Paper products	43	29	-14
30.	Jute textiles	17	25	8
31.	Sugar	24	-7	3
32.	Drugs, pharmaceutical	21	13	-3

The data in Table 4 shows that in 1983, there were 24 important industries for which the industrial concentration (i.e. the share of the largest four firms in industry output) was fairly high. In these cases, the share of the largest 4 firms ranged between 60% and 100%. Out of the 32 industries, for which data have been given in Table 4, concentration ratios in 7 industries remained constant, in 11 industries it declined and in 13 it increased between the years 1976 and 1983. The figures in the Table over-all give an impression of widespread monopolisation of industrial output in the country.

4.   Need for Control of Monopoly and Industrial Concentration

As noted at the beginning of this lesson, the national leaders in the immediate post-independence years were against concentration of economic power in the hands of a few persons or households. They gave to the country a national goal, viz., the establishment of a socialistic pattern of society. In other words, a more equal distribution of income, wealth and property was to be attained. Naturally, therefore, in the light of this national goal, monopoly

and industrial concentration were to be curbed. As we shall notice in the next section, several policy measures were adopted with this objective in view.

Here the question that arises is what was the precise need of controlling monopoly and industrial concentration in general and under the special circumstances of the country in particular? In the first place it is obvious that when the country attained independence, majority of the population was very poor. A process of development was to be put into operation. Clearly, the national leaders could not visualise a situation where the development process would benefit only a small minority or these who were already affluent. The development process was aimed at benefiting the majority which comprised of the poorer sections of society. Besides, Jawaharlal Nehru, the first Prime Minister of the country had been immensely influences by the egalitarian process of development being experimented with at the time in the erstwhile Soviet Union. This, therefore, required emergence of monopoly and industrial concentration to be strictly kept under control. The over-all statement in the country was in favour of establishment of a socio-economic order in which there was no place for monopolistic exploitation and glaring inequalities. For achievement of these national goals it was considered necessary to control monopoly and industrial concentration.

Secondly, everywhere in the world, monopoly and oligopoly have usually been associated with restrictive and unfair trade practices. Wherever a single or few sellers control the entire market, the consumers and industrial workers naturally become victims of such practices. Among the restrictive practices that may be followed in such a market situation are, for example, the restriction of output and creation of scarcity in the market, or use of fraudulent practices to keep rivals out of the market. Unfair trade practices include charging a monopoly price, supplying a shoddy product or service to be superior to that of the rivals, victimisation of the workers, etc. In India too, monopoly and industrial concentration have been sought to be curbed with a view to prevent the private sector from indulging in such restrictive and unfair trade practices.

Thirdly, monopoly and industrial concentration are the very antithesis of competition. The former thwarts of new firms into it. In a developing economy like India, there is need for creation of circumstances under which new and small entrepreneurs are nurtured and encouraged to start business wherever opportunities exist. Monopoly and industrial concentration help in encouraging the vested interest of the existing firms to get more and more entrenched in an industry. The existing industrial houses become bigger and stronger which provides them economic power and unfair advantage to keep out the weaker competitors. In India, the big industrial houses were actually found in the 1960s to use the industrial system of the government to keep out the potential rivals. This, therefore, justified state policy to curb the rise of monopoly and industrial concentration in the country.

Thus, we have noted above that measures to control monopoly and industrial concentration in India, were justified partly on ideological grounds of the felt need for establishment of a socialistic pattern of society in the country and partly on grounds of the need to protect consumer and worker interests as well as the general economic arguments against a market structure where free play of the forces of competition is suppressed. What were the precise policy measures adopted in this respect? We turn to a discussion of these below.

5. Policy Measures adopted to control monopoly and concentration

The policy measures with a view to control monopoly and concentration of economic power in the country can be broadly divided into two categories, viz. (i) those undertaken under the industrial and fiscal policies, and (ii) the legislative measures. These are discussed in same detail ahead.

The industrial policies of 1948 and 1955 provided the following four distinct measures to build up an economic structure wherein private monopoly could be contained, its growth prevented and an equitable distribution of income and wealth brought about:

(a)   Extension of the public sector.

(b)   Licensing system for industries under the Industries (Development and Regulation) Act, 1951.

(c)   Extension of the co-operative sector, and

(d)   Progressive taxation.

We shall consider the efficacy of the first three measures from the point of view of preventing monopoly and reducing disparities in income. The use of the fourth measure, viz. progressive taxation is self-evident and will not be discussed here.

Extension of the public sector and its growing role in the economy is very much different in its nature from the growth of private sector. The growth of public sector does not lead to disparities in the distribution of income and wealth in the sense that it is owned by the public and exists only for the benefit of the public. Earnings of the public sector are ploughed or utilised for the common good. No single person or business house is the owner of the enterprise and its earnings and therefore extension of public sector reduces the growth of the private sector in that field is certainly welcome. However, in order that the object of restraining the growth of private monopolies is achieved, public sector must extend, besides the field of public utilities, into other industries.

In pursuance of the policy of growth and extension of the public sector and the sector grew phenomenally in the post-independence period as is evident from figures in Table 5 below.

TABLE 5.
Growth of Public Sector in India

S. No.	Year	No. of Central Govt. enterprises	Total investment (Rs. in crores)
1.	Commencement of First Plan	5	29
2.	1960-61	48	953
3.	1970-71	87	3606
4.	1980-81	168	18207
5.	1995-96	239	173870

It is thus clear from the above figures that the post-1951 period has been an era of stupendous growth of the public sector enterprises in India. Besides, the achievement of other socio-economic goals, such growth of the public sector also aimed at creating a countervailing power for curbing private sector monopoly and industrial concentration. The industrial policy resolutions of the government, except the one announces in June 1991, have reserved wide areas of operation to the public sector. Even those segments of industry which were normally left for the private sector, were not out of bounds for the public sector.

Some other indices of the growth of the public sector in India are: (a) the share of public sector in total investment in industry rose from 16% in First Plan to 62% in Fifth Plan, though it fell to 33% in the Eighth Plan, and (b) the share of this sector in gross value added in manufacturing rose from 5.4% in 1960-61 to 32.1% in 1992-93.

Another measure adopted by the government to control monopoly and industrial concentration was the Industrial Licensing Policy. Before the process of liberalisation of Indian Economy started in 1991, industrial licensing was an important component of the policy to regulate and control private sector industry. Those industries which were covered under the Industries (Development and Regulation) Act, 1951, were required to seek a license before setting up a new enterprise or carrying out a substantial expansion of an existing firm. Industries involving investment of less than a certain amount did not required any license under this Act. But why was it necessary to obtain a license in set up an industry? A person who is prepared to invest should be left free to decide about the industry, the place of its own location according to his own choice, one may say. Why should it be necessary for him to apply for license to set up an enterprise? This leads us to examine the purpose underlying the system of industrial licensing.

There were in fact several objectives behind the licensing policy as originally adopted. One of these was to so regulate the industrial structure as to harmonise the private gain with social interest. Thus, industries harmful to the social interest could be denied an industrial license. Secondly, regional dispersal of industries could be ensured by granting licenses to industries mainly in the backward regions. Thirdly, big business houses could be denied licenses so as to prevent concentration of economic power in the hands of a few rich families and the licensing authority could encourage the growth of new entrepreneurship in the country. Thus, the licensing policy was to serve as one of the instruments of curbing monopoly and concentration of economic power. The policy was all but abandoned in the Industrial Policy of 1991. Most industries have been taken out of the purview of his policy. Now only those industries which are of security and strategic concern are subject to licensing. Even their number is being reduced. In 1997-98, their number was reduced from 14 to 9.

The extension of the co-operative sector was also thought to contribute to achieve the same objective. However, this form of business organisation has never really been seriously used as an instrument of monopoly control.

Next, let us discuss the legislative measures of control of monopoly and concentration of economic power. The legislative measure was the Monopolies and Restrictive Trade Practices Act, briefly referred to as MRTP Act.

The Act (1969) was an instrument to prevent concentration of economic power and control of monopolistic and restrictive trade practices. It attempted to control monopoly

formation by making approval of the central government obligatory in respect of mergers and amalgamation under Section 23 of the Act.

The Act defined a monopolistic undertaking as one which produced, supplied or distributed not less than one half of total goods produced, supplied or distributed in India or any substantial part thereof. A dominant undertaking was one which produced, supplied, distributed or other-wise controlled not less than one-third of the total goods produced, supplied or distributed in India or any substantial part thereof.

Concentration of monopoly power is accentuated when an existing monopolistic or dominant undertaking strengthens its position by undertakings, mergers, amalgamation and takeover. Sections 21, 22, 23 of the Act provided enough safeguards in this respect. It was obligatory under the Act to put forward an application/scheme/proposal for the approval of the Central Government and further steps in this direction were possible only with the approval of the Central Government. In the case of expansions, application was to be made with regard to only such expansions as would increase the value of assets or the production, supply or distribution by not less than 25%.

The MRTP Act has created a MRTP Commission which scrutinised all proposals for capacity expansion by all large firms and approval was often tied to export commitments. Large business houses, which came to be termed as 'MRTP undertakings', had to be got registered under the Act and were either covered under the asset criterion and/or the market dominance criterion.

Most analysts were very critical of the way the MRTP Act had been implemented with a view to check monopoly and industrial concentration. According to, for example, Sunil Mani, "The MRTP Act has failed miserably in carrying out its primary objective or reducing concentration. The Act has literally existed only on paper". In any case, the New Industrial Policy Statement, July, 1991, had diluted most of the provisions of the MRTP Act.

Inspite of the plethora of measures being devised by the government to regulate the activities of the private sector and to particularly check the growth of big business houses in India, the intended objectives were never achieved. Either the implementation of these policies was faulty or their very design was unsatisfactory. It was also contended by many that the policy framework to check the growth of private sector was based more on ideological and political bias against the sector rather on firm economic logic or even the overall interest of the people in general. It has also been argued that the growth of the so-called monopoly houses in the country was the result of the superior entrepreneurial talent of those who controlled these industrial empires rather than on their supposed exploitative practices. The anti-monopoly law was, therefore, considered to be perversely aimed at punishing the more efficient and hard working class of entrepreneurs of the country. Besides, the antidote for growth of monopoly and industrial concentration, viz. the encouragement provided to the expansion of the public sector, also did not seem to have the desired effect. As will be noted in Lesson 18 letter, public sector itself has been afflicted with numerous problems in the country. No wonder, therefore, that the anti-monopoly measures seemed to be a futile exercise and it was consequently abandoned in the last few years.

In the last one decade and a half, realisation has dawned upon the policy-makers and economists of the country regarding the need for a closer co-operation between the government and the industrial houses rather than the fostering of an atmosphere of animosity between them. This has been the result of the experience gained by the countries of the Far Eat like Japan, South Korea and other Asian Tigers. In these countries, now Asian multinational corporations the emerging as a result of the co-operation between the government and the private sector industry. Japan has several of these MNCs which are dominating markets even in the developed world of the west. Besides, South Korean MNCs like Daewoo and Hyundai are taking swift strides forward. Majority of them have been helped and prodded to grow by their respective governments. It is now being realised that India could also have nursed the growth of a few MNCs (like Birlas and Tatas) of its own by now, had the government not pursued a futile policy of checking their growth in the name of controlling monopoly and industrial concentration. This is, however, a matter of intense debate in the country and even today there is a class of writers and commentators who would like the big business houses to be kept in tight leash and the public sector to be kept intact.

At the policy level, the government is no longer bothered by the extent of monopoly and industrial concentration. Even the extent of this phenomenon in the country is not being studied with the same vehemence that was characteristic of the industrial debate in the first twenty years after independence. The latest credo in this respect is to promote increasing competition in different industries and to help in the emergence of new entrepreneurship. This, it is hoped, will keep monopoly and industrial concentration in check.

Exercise

1.   Define Industrial Concentration.

2.   Define MRTP Act, 1969.

6.   Summary

In previous units, we have discussed the broader issues of monopoly, industrial concentration and mergers and acquisitions. The present unit discusses the extent of monopoly and industrial concentration in India. After the independence, the main emphasis of policy makers was to reduce inequality, control of monopoly and check industrial concentration in India were justified partly on ideological grounds of the need for the establishment of a socialist pattern of the society in the country. The policy measures with the view to control monopoly and industrial concentration can broadly divide into industrial and fiscal policies and legislative policies. The Industrial Licensing Policy and MRTP Act, 1969 the government to control the monopoly and industrial concentration in India.

7.   Glossary

- **Industrial Concentration:-** Industrial Concentration refers to a structural characteristic of the business sector. It is the degree to which production in an industry or in the economy as a whole is dominated by a few large firms.

- **Monopoly:-** A monopoly is a market structure characterised by a single seller or producer. A monopoly is an enterprise that is the only seller of a good or service.
- **Market Power:-** Market Power describes the level of ability of a company to control prices for a particular product or service in relation to the level of competition in its industry and its control of supply and demand.
- **MRTP Act:-** The Monopolistic and Restrictive Trade Practices Legislation (MRTP) was implemented in 1969. This law was designed to ensure that the economic system's operation does not result in the concentration of economic power in the hands of a few.
- **Oligopoly:-** An oligopoly consists of a select few companies having significant influence over an industry.

8.   Answers to Self Check Exercise

Answer to Q1. Refer to Section 3.

Answer to Q2. Refer to Section 5.

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10.   Terminal Questions

Q1.   How does industrial concentration relate to market structure, and what are the different types of industrial concentration?

Q2.   How do government regulations and policy measures aim to address issues related to monopoly and industrial concentration?

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THEORIES AND MEASURES OF INDUSTRIAL LOCATION

STRUCTURE

1.   Introduction

In this lesson we purpose to discuss the location of industry. Industrialisation involves setting up of more and more industrial units and naturally the question arises: where to set them up? An industrial unit cannot be set up just anywhere. The entrepreneur has to take a decision based on many considerations in this respect. Before we discuss the factors influencing the decision of the entrepreneur or an industrialist let us first review the theories of location.

2.   Learning Objectives

After going through this lesson, you will be able to:-

- Understand the fundamental theories of industrial location and their significance in economic geography.

- Explore the factors that influence industrial location decisions.

- Understand the measures of industrial location.

3. Theories of Location

The classical economists did not develop a Theory of Location. They discussed location not as an independent subject but did so in the context of other issues. For Adam Smith location came in while discussing geographical division of labour. J.S. Mill and Marshall discussed location factors only. Another aspect which led classical economists to discuss location was the influence of rent on location. However, no *theory* of location was developed by them. The first attempt to present a theory of Location was made by Thunen, a German economist but he confined himself to agriculture. He argued that location of agricultural production is determined by the relation between the price of the products in the market place and the distance from the market place. He did not consider the influence of transport and labour costs on location. In fact, he presented a very elementary explanation of location and that also in the context of agricultural production. It was Alfred Weber, a German economist, who presented systematic theory of location in his work entitled "Theory of Location of Industries" first published English in 1929. He discussed a systematic, unified and coordinated theory of location of *Manufacturing Industries*. Weber has discussed in detail the factors which pull an industry towards different points of location. His theory is generally described as a 'pure theory' of location. It is deductive, i.e. it is based on a logical analysis of factors affecting the choice for location. Let us study the theory in some detail.

(a) Weber's Theory of Location:

According to Weber the location of industry is a result of the working of a network of complex and diverse elements. If individual cases of location were to be taken up, these elements would appear to be mixed up so inextricably that it would, be difficult to formulate a theory to explain the location of industries in general. It is necessary to isolate these complex factors to present a theory of 'location. Weber, therefore, began by making simplifying assumptions and on the basis of these assumptions, be built up his 'pure' theory of location.

Weber's theoretical analysis consists of two parts: the first part deals with the statement of economic factors which influence location whereas the second part deals with the formulation of laws based on these factors. Weber classified the general factors influencing the location of industries (i) Regional Factors and (ii) Agglomerating and Deglomerating factor. It is the regional factors which are of primary importance in determining the location of industries. The second set of factors only, explains the concentration and dispersal with regard to original industrial location.

(i) Regional Factors:

Weber mentions two important factors as regional factors which influence the location of industry. These are: (i) Transport Costs and (ii) Labour Costs. For simplicity of exposition, he first assumes labour costs as constant and tries to formulate his law in terms of transport costs. He makes the following important assumptions which hold good throughout his theory.

(i)   Equal transportation rates throughout.

(ii)   Equal costs of raw material at all deposits but the distribution of deposits is supposed to be uneven.

(iii)   Centres of consumption and labour centres are fixed. The latter have unlimited supply of labour at constant costs.

Let us now turn to explain Weber's theory in terms of transportation costs assuming labour costs to be constant. Any industry has a relationship with two places: the place of consumption or market where the commodity will be consumed or sold and the place of raw material which the commodity is made of. Thus, with all other factors assumed to be given, the choice for location of an industry would lie between these two places.

A ——————————————————— B

(Raw Material Deposit)   (Consumption Centre of Market)
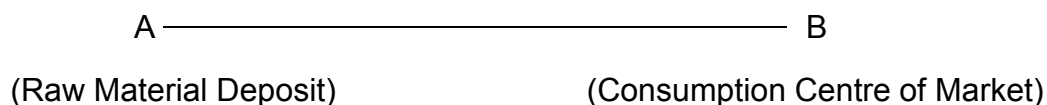
A is the place of Raw Material Deposit and B is the consumption centre of market. An industrialist has to choose between A and B; for by assumption other considerations do not enter in his choice. How will he choose between A and B? According to Weber the proposition is simple, if the industry concerned uses ubiquitous raw material i.e. raw materials which are found everywhere, there is hardly any choice involved. The industrialist can locate the industry anywhere he feels like it. It is only when the industry uses raw materials which are localised i.e. which are found only at specified places that a problem of choice arises. The choice between A or B relevant only for industries using localised raw materials. The guiding factor in the choice would remain, viz. where will the transport costs be minimum, at A or B? Weber has tried to explain that a reliable idea about it can be had by examining the nature of raw material. If the raw material is 'Pure' the transport costs are likely to be minimised by locating the industry near the place of consumption or market. If the raw material is weight-losing, the transport costs are likely to be minimised by locating it near the place of raw material. A pure raw material transfers the bulk of weight to the finished commodity whereas a weight-losing raw material transfers very small part of its weight to the *finished commodity*. Let us take the example of Sugar Industry which uses weight-losing raw material. Assuming that 10 quintals of sugarcane are needed to produce one quintal of sugar; the *industrialist* will have to transport sugarcane from A to B, if he decides to locate the sugar mill at B. If he wants to produce 100 quintals of sugar, he will have to transport 1000 quintals of sugarcane from A to B. On the other hand, if he locates the industry at A, 100 quintals of sugar will be produced and he will have to transport only 100 quintals to B. i.e. the market. The distance is the same A-B. In one case the weight is transported is 1.000 quintals and in the other case it is only 100 quintals. It is obvious, therefore, that it is desirable to locate the industry near the raw material deposit. Why? Because the transport cost would be minimised. Weber explains that transport cost depends upon two factors: (i) weight to be transported (tons), and (ii) distance to be covered (miles). So all that one has to do is to look at the ton-miles, which will give the idea of relative cheapness of transport cost as between two alternative places of location. In the case of pure raw materials, the ton-miles would be less if we locate the industry near the market or consumption centre. Weber enunciates his law of transport orientation in terms of a statistical index in the following words: "The location of manufacturing industries is determined, transport costs being variable, labour costs constant, by the ratio between the weight of the localised materials and the weight of the final product". The ratio it called the MATERIAL INDEX. If this index is greater than unity, location is attracted towards the place of raw material deposit. If it is less than unity it tends to be attracted to the consumption centres.

Thus, under the general assumptions stated above and the simplifying assumption that only transport costs are variable and no other cost is variable, we have reached the conclusion that the industry will tend to be located near the place where transport cost is minimum. The transport cost would be minimum if the industry is located near the raw material deposit in case of industries using weight-losing raw material and near the consumption centre or market in case of industries using pure raw, material.

Let us now turn to the case when labour cost also varies. Now the question arises: Will the industry deviate from the minimum transport cost location? Weber tries to explain it with the help of the concept of *Isodapanes*. He assumes alternative labour centres so situated that deviation cost from the minimum transport cost is the same. In other words, Isodapanes refer to those labour centres, which have the same deviation cost from the minimum transport cost point. As we are now considering the case that labour costs are varying, in one of these Isodapanes, the cost of labour should be so low as to make the average cost of the industry lowest as compared with all other labour centres. The industry will deviate to this isodapane. It is called *'critical isodapane'.* The forces which work to make the industry deviate to the critical isodapane depend upon two basic factors: firstly, on the ratio of labour cost of the manufacturing industry to the weight of the product (Labour Cost Index), and Secondly, on the weight to be transported during the process of production, namely Locational weight. Weber calculates Labour Coefficient as the ratio of labour cost to the locational weight, and states that the Labour Coefficient can explain the extent of deviation in case of varying labour cost.

(ii)   Agglomerative and Deglomerative Factors:

After having explained the location pattern as influenced by the regional factors given above, Weber discusses other factors which can influence location and cause its deviation from the minimum transport cost point. When concentration of an industry at a particular place leads to a reduction in cost, agglomerative factors are said to be at work. On the contrary when dispersal leads to a reduction in cost, deglomerative factors are said to be at work. In the former case, unit after unit of the industry would be attracted to the same place. In the latter, unit after unit of the industry will try to leave the place. Agglomeration refers to advantages of external economies, availability of cheap and skilled labour, transport and communication facilities, etc. Deglomeration on the other hand includes the cost of factory-sites, crippling local taxation, scarcity of labour and consequently high wages, etc. weber has stated the following law of agglomeration: "Industries with high coefficient of manufacture show strong tendencies to agglomerate; industries with low coefficient of manufacture show weak tendencies to agglomerate; and these tendencies are inherent in their nature". The term Coefficient of Manufacture stands for ratio of manufacturing cost to locational weight. Thus industries having a high proportion of manufacturing costs in their total cost will have a tendency to agglomerate.

(iii)   Split Location and Locational Coupling:

After having explained the laws governing location, Weber also mentions cases where location of an industry is split between places. Thus, if an industry has two stages of production, each of which is independent of the other and can be carried on separately, the industry can be broken up into two from the point of view of location. one unit of the industry

may be set up at one place to produce the commodity in the first stage and the other unit may be located at another place to produce the final commodity. Paper industry is cited as an example. Pulp making is the first stage and paper-making is the final stage. Pulp units can be set up near the place of raw material and after pulp has been made it can be transported to the paper-mills.

Sometimes industries tend to get located side by side. Thus printing presses and type foundries or spinning mills and weaving mills generally tend to be located at the same place: the forces working here are reflected in the economy available on account of such location: for each uses the product of the other in a big way. This is called locational coupling.

We have very briefly summarised the Theory of Location as given by Alfred Weber. He has also tried to explain the locational distribution of manufacturing industries in Germany and the general pattern of economic activity elsewhere. Weber is conscious that no theoretical analysis can adequately explain that phase of industrial location which is the result of "historical accidents" or other extraneous circumstances. Sometimes an industry gets localised at a particular place for no specific reason other than that the entrepreneur is interested in it. Mr. Ford started to manufacture motor cars in Detroit, because it was his home town. Similarly, the cotton textile industry first settled in Lancashire for no particular reason except that the woollen industry was already there.

All these illustrations serve to show that location of an industry is not wholly governed by economic considerations. Although it may be that those very 'fortuitous' locations may subsequently acquire the advantages of 'early start' and may become the centres of industrial activity, it can hardly be inferred that the initial concentration of the industry in these areas was the result of strictly economic calculus. In as much as the present distribution of industrial activity is the result of such irrational motives, whims and idiosyncrasies of the entrepreneurs it remains outside the purview of economic analysis and hence cannot be explained by "pure theory" of industrial location. For this we must try to discuss the factors which industrialists generally take into account apart from theoretical guidance.

Weber's deductive theory has been criticised on various grounds. Critical comments have been made on the grounds that it is not a complete explanation for the location of an industry as also on the ground that deductive reasoning is based on unrealistic assumptions. The following points of criticism are usually made:-

1. Choice of industrial location is the result of diverse and complex forces which include economic as well as non-economic considerations. Weber's theory does not take into account all these factors and therefore this theory is an incomplete explanation of industrial location. It is necessary to have an empirical study of the location of industries so as to base one's conclusions on it, for this will take into account existing facts as they have emerged as a result of economic and non-economic factors. A deductive theory cannot explain the reality of location.

The criticism virtually amounts to saying that Weber has not taken into consideration non-economic factors which is real life influence the choice of location. In all fairness, one should criticise Weber on what he has said and not on what he has not said. Perhaps no theory can take into account all possible factors influencing a phenomenon so as to explain

the reality. We should pick up faults in the logic and premises of Weber's theory rather than believe that he did not take into consideration non-economic factors.

2. Weber has made unrealistic assumptions. Thus, while introducing the concept of transport costs, He argues that weight and distances are the two factors which determine the transport calls and therefore transport calls could be expressed in ton-miles. This is far from real. Transport cost depends upon the mode of transport (Rail, Road, Water, Air Transport), the nature of the terrain, the rates of transport, etc. Not only that Weber did not take these factors into account, he expressed transport cost in ton miles instead of monetary term.

3. Weber has mentioned raw material deposit, market or consumption centre as alternative places for choice of location assuming that labour is available everywhere in an unlimited supply. In other words, he has assumed fixed labour centres with abundant labour supply. The critics point out that this is not so in reality.

4. Again, It is said that Weber argued in favour of market locations or consumption centres. But market or consumption centre is not a fixed geographical area. It may be spread throughout the country or even beyond the country. Under such conditions the market oriented location would have no definite meaning.

Weber has also not explained the meaning of a market location under different contexts. When markets were limited, a geographical area could be identified as the market of a commodity or the main market of a commodity and market location could be given an identifiable meaning. In the modern context, Weber's market location needs in new meaning. In the present context, market location would imply locating the industry at a place which is economical for distribution of the product. Market may, therefore, be taken to be a synonym for an efficient and economical distribution centre.

5. Weber classified raw materials into ubiquitous and localised categories. He built up his theory on the basis of localised raw materials. Austin Robinson has argued that this classification is artificial. In many cases industries do not use a single raw material. They use a number of raw materials drawn from diverse resources and therefore to classify raw materials into ubiquitous and localised is superficial.

6. It has been argued that we Weber's theory is far removed from a discussion of cost and price as the affect the choice of location. It is explained in terms of Material Index, Labour Coefficient and Coefficient of Manufacture which do not properly explain the cost-price relationship in the context of location.

7. Andrew Predohl has argued that Weber's theory is far removed from the General Theory of Economics. According to him every economic activity is an act of substitution. Choice of location is also an act of substitution. Alternative places of location only imply alternative combinations of factors of production in these places which implies substitution between different factors in various places off location. A theory of location which does not take into account this basic characteristic of choice cannot be regarded as satisfactory.

(b)   Sargant Florence's Theory:

Sargant Florence has looked at the problem of location empirically and out forward three statistical concepts to explain the phenomenon of industrial location. These statistical

concepts with their implications for industrial location are referred to as Sargant Florence's Theory of Location.

Sargant Florence begins by explaining the concept of localisation. The common notion about localisation consists in the fact that it is a geographical concentration of industry. Thus, in popular parlance we often say that cotton textile industry is localised in Bombay or Jute Mill Industry is localised in and around Calcutta, etc. The basis of these statements is that a large number of industrial units have been concentrated in a particular area. In other words, localisation in the common mind is the relationship between and industry and geographical area. Sargant Florence explains that this is not what localisation means. He says, "Localisation is popularly through to meant the concentration of some industry in one particular place" in short, a relation between industry and geographical area. But this is not what economist usually mean, and is not particularly significant. The relation of an industry to an area is not so important as the relation of the industry to the distribution of the occupied population as a whole. D.H. Robertson makes localisation a question of the differentiation of division of labour between different countries or districts, and Marshall, in a footnote, illustrates the conception by citing one Russian village that makes nothing but spoke for the wheels of vehicles another nothing but the bodies and so on. A villages is a collection of people and the economists emphasis is thus on the proportion of the total population (or of the total of labour) engaged in particular industries, rather than geographical area covered by the industries.

With this concept of localisation of industries, Sargant Florence introduces three statistical measures (concepts) for industrial location.

4.   Measures of Industrial Location:

1. The Location Quotient or the Location Factor

The Location Factor or Quotient seeks to measure the degree of concentration of an industry in a given region. It seeks to answer the question like: Is textile industry localised in Bombay? Calculate the Location Quotient for textile industry in Bombay and give the answer according to the value of the Quotient. Let us illustrate the computation of Location Factor by taking an example.

Let,   A stand for the share of the region in the total workers employed in the industry.

B stand for the total workers employed in the industry.

C stand for the share of the region in the total working population, etc.

D represent the total working population.

The location quotient can then be computed in either of the following two ways:-

(i)   By dividing the percentage share of the region in the total workers employed in the industry by the percentage share of the region in the total working population.

The percentage share of the region in the total workers employed in the industry=A/B.100.

The percentage share of the region in the total working population = C/D.100.

Therefore, Location Quotient = A/B.100 divided by C/D.100.

(ii)   By dividing the percentage share of the industry in the total workers employed in the region by the percentage share of the industry in the total working population.

The percentage share of the industry in the total workers employed in the region=A/C.100.

The percentage share of the industry in the total working population = B/D.100.

Therefore, Location Quotient = A/C.100 divided by B/D.100.

$$= \frac{A.D.}{B.C.}$$

It is evident that both the methods (i) and (ii) given the same results. The value of the Location Quotient will indicate the degree of concentration of the particular industry in a particular region. I'd an industry is evenly distributed over the whole country, its location quotient will be close to unity for each region. If the distribution of the industry is highly uneven, it would be more than unity is highly uneven, it would be more than unity for the region where the industry is concentrated and zero or very near zero for other regions.

The Coefficient of Localisation: It is statistical index of the localisation of a particular industry and seeks to measure the local concentration of that industry relatively to the distribution of industries as a whole. It gives a general picture of the degree of local concentration of a particular industry as compared with the distribution of the working population as a whole. The following formula defines as also explains the competition of the co-efficient of localisation:-

"When workers are divided up region by region as percentages of the total in all regions, the coefficient is the sum (divided by 100) off the plus deviations of the regional percentages of workers and the particular industry from the corresponding regional percentages of workers in all industry".

Thus to compute the coefficient of localisation for an industry we need to have the following:

(i)   Region-wise distribution of working population.

(ii)   Region-wise distribution of working population of the industry concerned.

(iii)   Regions

Let us illustrate the computation of co-efficient of localisation of the woollen industry of a country by taking the following example:

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Percentage of Workers

Regions of the Country	(a) Total employed in all industries	(b) Employed in woollen industry	Deviation (a) – (b)
All Regions	100	100	0
Northern Region	25	30	-5
Central Region	30	15	15
Southern Region	5	1	4
Eastern Region	20	4	16
Western Region	20	50	-30
	100	100	

Sum of plus deviations   =   35

Coefficient of Localisation   =   35/100

                            =   0.35

       In the above example coefficient of localisation turns out to be 0.35. The relatively low value of the co-efficient means that the woollen industry is rather widely dispersed in this country. We must note one important point. Even if we take the deviations as (b) – (a), the value of the Coefficient of Localisation would not undergo any change. Thus,

Deviations

(a)	(b)	(b) – (a)
25	30	5
30	15	-15
5	1	-4
20	4	-16
20	50	30
100	100	

Sum of plus deviations   =   35

Coefficient of Localisation   =   35/100

                            =   0.35

We can calculate the co-efficient of localisation for a large number of industries at the same time. For the sake of simplicity we took only one industry, the woollen industry and calculated its coefficient of localisation. What are the implications of coefficient of localisation? It will depend upon the value of coefficient. Thus, Sargant Florence says, "complete coincidence, region-by-region, of the particular industry with all industries gives a coefficient of O, extreme differentiation (e.g. workers in the particular industry being all concerned in one region) gives a figure approaching 1".

Zero and unity are the extreme values of the coefficient of localisation. When the coefficient is zero, it implies that the industry is not concentrated in any region, and when it is unity, it implies that the industries concern created in a particular region. Those industries which have low co-efficient of localisation have high propensity of dispersal, for they can thrive in widely different circumstances. Grain milling, tailoring, shoe-making, brick-making are examples of such industries (Compare industries using ubiquitous raw material. Weber argued that such industries could thrive anywhere). On the contrary industries having high coefficient of localisation are heavy industries or extractive industries like coal mining, slate quarrying which are located near the deposit of raw materials. (Compare Weber's raw material controlled location based on the nature of raw material). On the basis of the value of coefficient of localisation, Sargant Florence has classified the industries as follows:-

1. Industries having coefficient of localisation between 0 to 0.29.

2. Industries having coefficient of localisation between 0.30 to 0.39.

3. Industries having coefficient of localisation between 0.40 to 0.49.

4. Industries having coefficient of localisation between 0.50 to 0.59.

5. Industries having coefficient of localisation between 0.60 and above.

Sargant Florence is of the view that the most dispersed industries can be measurably distinguished by a low coefficient of localisation. He suggests that industries having a coefficient of 0.25 or less should be taken as dispersed industries and those having a location quotient of 0.4 (at least) in every region as ubiquitous industries. Those industries which have a coefficient in localisation as 0.6 or above may be treated as localised industries. Thus a very useful conclusion emerges. Industries having a very high or low coefficient or localisation show little tendency to disperse. It is only the industries having coefficient in the mid-range i.e. 0.4 to 0.6 which have a tendency for dispersal. It has a policy implication. The government should, if it is following a policy of dispersal of industries, concentrate on industries falling in this range.

The Coefficient of Linkage: Professor Sargant Florence has also tried to measure the linkage or geographical association between two industries Sometimes industries tend to be located in the same place on account of having a related technical process or on account of mutual interdependence. The coefficient of linkage tries to measure the extent of linkage between any two industries. The coefficient of linkage can be calculated by the following formula: "When workers in various industries are divided up region by region as percentage of their total, it is the sum (divided by 100 and subtracted from unity) of the plus deviations of

the regional percentages, of workers in the particular industry from the corresponding regional percentages of workers in the other industry."

Let us now try to explain the computation of coefficient of linkage. It is similar to the calculation of coefficient of localisation. The table below tries to work out coefficient of linkage between cotton mill industry and woollen mill industry.

Percentage of Workers

Region	(a) Woollen Industry	(b) Cotton Industry	Deviation (a) – (b)
Northern Region	35 percent	15 percent	20
Central Region	10 percent	30 percent	-20
Southern Region	05 percent	15 percent	-10
Eastern Region	10 percent	05 percent	5
Western Region	40 percent	35 percent	5
	100	100	

Sum of plus deviations   =   30

Coefficient of Linkage   =   30/100

                     =   1 – 0.3

                     =   0.7 is the Coefficient of Linkage

It may be noted again the deviation when calculated as (b) (A) would also yield the same result as in the case of coefficient of localisation. What is the implication of the values of the coefficient of linkage varying from 0 to 1. Complete coincidence region by region of the two industries will give a coefficient of linkage of 1; extreme differentiation O.

If the linkage is hundred percent, the value of the coefficient would be unity. It would imply that wherever there is a unit of one industry, a unit of the other industry would also exist. The extent of linkage suffers a decline with the lowering of the value of the coefficient. The policy implication is clear. Industries have a high coefficient vertically related as consecutive processes. (Compare the case of locational coupling given by Weber). Such industries have certain advantages in juxtaposition. They will, therefore, tend to move in the same direction and their locational trains will usually manifest considerable uniformity and similarity. The question about the significance of linkage may be decided on the basis of 0.5 or higher values of the coefficient of linkage. Industries having smaller values for the coefficient may not be significantly linked; for they may not show that same uniformity and similarity in the location trends.

Let us now evaluate the contribution made by Sargant Florence to the theory of industrial location. Let us try to compare him with Weber and answer the question whether his

theory is an improvement over Weber's theory? We have already indicated while discussing the statistical coefficient that there exist comparable concepts in Weber's theory. Thus, coefficient of localisation only tries to draw attention to ubiquitous and localised material industries and raw material controlled any market control locations. Coefficient of linkage only explains locational coupling. It appears that Sargant Florence has empirically verified Weber's theory. We can say that the chief contribution of Sargant Florence lies and putting forward the same conclusions in an alternative statistical manner. For this he deserves all credit. This, however, does not imply that this theory is superior to weber's theory.

An Appraisal:

1. It has been argued against statistical coefficients of Sargant Florence, that "by choosing one suitable geography areas, one could get any value of the coefficient one pleased". It, however, does not follow from this, that Professor Florence's coefficients have no merit at all. In the first place selection of areas or regions is not arbitrary and is in no case based on the whims of an investigator. Regions or areas are invariably those contained in the censuses. Besides, further researches conducted by Professor Florence and A.J. Winsley show that one a certain minimum number of areas are taken, coefficients of localisation based on a large number of areas do not show large variations. Thus, in practical life the possibility of misusing the coefficient for a purpose is insignificant as the choice of regions is not arbitrary and after a minimum of free journals is taken the variations also become insignificant.

2. The statistical coefficients of Sargant Florence represent the existing distribution of industries in the country. Why the distribution took a particular form, is not explained by the coefficients. There is another limitation. If an altogether new industry is to be set up for which no statistics are available with regard to distribution of working population, the coefficients cannot be calculated and no inference drawn. In such cases the coefficients will not guide the locations policy in any country.

3. Deductive theory such as Weber's theory has the merit of universal application. An inductive theory like Florence's theory is based on facts as the exist indifferent countries. These facts, and in this case the fact of distribution of industries will vary from country to country. On the basis of coefficients it is difficult to determine whether an industry has a tendency for concentration. On account of differences in the methods and form of collection of statistics coefficient having more or less equal value need not have similar implications. Thus, the universal applicability of conclusions is impaired.

4. Some critics have criticised the Location Factor or Quotient on the ground that it measures concentration on the basis of industrial workers employed in the region. According to them, this may not reflect the extent of concentration. They suggest that industrial output should be the basis of measuring industrial concentration. The criticism and suggestion is unfair and unwarranted. Once the basic concept of localisation of an industry has been explained, it is but reasonable and logical to proceed with the industrial workers and working population in the region. If relation of industry to the distribution of occupied population as a whole is the essence of localisation, as Sargant Florence has said, the Location Factor is above criticism.

The criticism of Sargant Florence's statistical concepts do not imply that they have no value or use. The fact is that they have made remarkable contribution to the inductive study of recent trends in the localisation of industries. The empirical results only confirm and explain the conclusions of Weber's deductive analysis. To take an example, if we find that certain industries have low coefficient of localisation such as mineral waters, grain milling, etc. and are, therefore, suitable for dispersal, it is because they use large quantities of ubiquitous materials. Thus, on closer analysis, one finds Weber's Theory and Sargant Florence's statistical theory complementary and not contradictory. The latter has lent way to many of the assumptions in hypotheses which were termed to be vague and unconvincing in Weber's analysis. This in itself is a contribution.

Beside the foregoing theories, some other theories were also developed in this context. For example, Augustus Loach in the early 1940s, tried to put forward theory which explained industrial location in terms of economies of scale, monopolistic competition and demand factors. Another set of theories, led by the work of H. Hotelling, is based on the premise that firms operate in an oligopolistic market situation and each firm's decision to locate is based on locational choices of its competitors. This set of theories also rejects the assumption of profit maximisation objective and applies the behavioural theory of the firm to location issues. In spite of these efforts to develop alternative theories of location, Weber's and Florence's theories and concepts still continue to be the most influential analysis in this area.

2. Factors affecting Industrial Location

From the foregoing theories as well as from the empirical analysis, several factors determining industrial location can be identified. These are as below.

Natural Factors: With regard to agro-based industries, natural factors play an important role. Thus, cotton textile mill industry finds the natural humid climate area more suitable than a dry climate area; for in the former breakage of yarn and low. Although it is true that artificial humidifiers have reduced the advantage of climate to a great extent, yet the fact means that humid climate area is better location, for an artificial humidifier tries to neutralise the climatic disadvantage but certainly adds to the cost of production. Natural topography also affects the choice of location. In a plain area the cost of transport is low, the cost of providing drainage facilities, disposal of waste products also depends upon the topography of the land and this will also influence the choice of particular place for location.

Psychological and Personal factor: Earlier we had occasion to refer to cases of industrial location which were based on non-economic factors. Commenting on them, E.A.G. Robinson has stated, "Mr. Ford started to manufacture motor cars in Detroit because it was his home town. Lord Nuffield selected Cowley because this school in which his father was educated happened to be for sale. Neither of these excellent motives can be regarded as promising certain success to those who imitate them". Thus personal preference, likes and dislikes for places play their role in choice of location. Industrialists are not solely guided by economic considerations alone.

Historical Factors: Sometimes purely historical accidents explain the location of industry. Once the location has taken place as a matter of historical accident, necessary skills

and facilities become available and the place becomes the choice of industrialists for locating units of production. This has happened in many countries in the world. Thus, the pottery industry in United Kingdom owes its concentration at Staffordshire due to the genius of certain employees and not due to any economic advantage. As between Lancashire and Manchester, the cotton manufacturing industry first settled in Lancashire "because the woollen industry was already there, that foreigners were kindly received and that Manchester was not a Corporation". In our own country location of utensils industry at Moradabad in U.P. and carpet industry in Mirzapur cannot be explained purely on economic considerations. It is the historical or accidental settling down of persons with necessary skill which brought about the location and later on concentration of industry in the area.

Strategical Factor: Lessons from the Second World War and wars that took place thereafter in different parts of the world have highlighted the importance of strategical considerations while making a choice for the location of industries. Wars are no longer fought in the battlefields alone. They are fought in the farms and factories of a country for it is the farm and factory which maintain the essential supplies for the fighting forces. Therefore, industries should be located at places which are as much immune from enemy year attack as possible. This is particularly true of industries which are engaged in the production of defence equipment and other essential supplies for the army. As for other industries also the strategical factor would certainly be operative. Given two equally goods locations from every point of view, the one which is strategically safe would be preferred. Perhaps the experience of Second World War led the Royal Commission on the Distribution of Industrial Population (1948) in U.K. to remark, "the risks of attack, and the best means of encountering them, ought for the future to be a vital consideration, not only in connection with broad issues of the location of industry generally, but for each individual entrepreneur or manufacture". In our own country, strategical considerations cannot be over-emphasised. We have witnessed three aggressions during a short period of 10 years from 1962 to 1971. Evidently security against air attack will play an important part in making a choice for industrial location.

Site and Service Factor: Industrialists take into account the value of sites and availability of public utility services in the area. Places where factory sites are available at cheap rates and public utility services are already available, attract the entrepreneurs as these choice releases funds for other uses. More often than not industrialists are discouraged to set up units of production in areas which need to be developed in national interest only on account of high value of sites and absence of economic overheads. The importance of this factor can be explained with the help of experience in our own country in terms of the shift of industries to Princely States from British India in pre-independence period. The Princely States offered lower level of taxation, fewer legal formalities and cheaper sites for factories. No wonder that industries tended to migrate to Indian States from British India. Even now the influence of site and services on the choice of locations is equally well recognised by the Government of India. The Government developed industrial Estates all over the country to attract industrialists to set up their units in them by providing side and services.

Power Factor: The wheels of industry would stand idle without power. Availability of power exercises and effective pull on the location of industry. Nearness to source of power is an important factor which an industrialist takes into account while making a choice for the location of his production unit. Nearness to coal deposits has been an important

consideration in the location of many industries. The location of iron and steel industry is a case in point. In the Southern part of the country when Pykara Hydro Electrical Project was completed, power became available in the area. The districts of Coimbatore, Madurai and Tirunelveli became the choice of location for the spinning Industry. If power is available uniformly all over the country, it would help the decentralisation of industry a great deal, for in the case industrialists would not be attracted to any particular site on account of availability of power.

The Raw Material Factor: Industrialists also take into account the availability of raw material while deciding upon the location of an industry. Some industries are raw material controlled in as such as they pull the industries to places of raw material deposit. Sugar industry in our country has its location in sugarcane growing areas. In its early year's cotton textile industry was also attracted towards raw material deposits for location Bombay and Ahmedabad, the initial places of location of cotton textile industry were in the famous black soil belt, so well-known for growing cotton in the country.

The Market Factor and the Nature of the product: Existing markets and potential markets exercise and important influence on the location of an industry. It is expected that market will develop in certain parts very soon; the location of the industry in that area would help in exploiting that market without much difficulty. The shift in the location of Jute Industry to parts of Bihar, U.P. and Madras is explained by the emergence of market for gunny bags required by agro-based industries like sugar flour and other industries like cement. The nature of the commodity also exercises an important influence in this respect. Industries which produce fragile, perishable or bulky products have a tendency to be located near the market. It reduces loss on account of breakage and perishability. The developments made in the field of packing the final products have considerably reduced the importance of the nature of the product as a factor influencing the location of industry but it would be too much to say that it has no influence whatsoever on the choice of location.

Transport Factor: No industrialist produced goods or services just for the sake of production. The goods produced must reach the consumer for whom they are meant. Besides, they should reach the consumer with their minimum possible cost; for otherwise the transport cost may push up the price. The place of location should, therefore, be such as would be very well connected with transport facilities. As between alternative sites of location which are otherwise more or less comparable, the one with better transport facilities would be preferred. If transport is so well developed that every part of the country is serviced by it and the transport rate system is such that it does not place an entrepreneur at a disadvantage if he decides to locate the industry at a place away from the market or raw material, then the influence of transport factor would not be very important. But so long as such a situation does not develop, transport factor would influence the choice of location.

Other Factors: Industrialists also look to certain other factors when they decide the location for their production unit. Availability of labour and existence of financial facilities are two such important considerations. These considerations, however, are not so important as to be prohibitive. Finance or capital is a mobile factor of production and labour too is mobile and can be moved to place on account of possibility of employment. The importance of availability of labour of a particular place was an important factor in those days when labour was highly immobile. Now the in mobility of labour has been considerably reduced and therefore the

importance of this consideration has also gone down. The availability of finance influences the location only when the government desires to influence the location by making available institutional finance only at certain places. If the government does not have such a policy the most mobile factor, capital, would flow to the desired place of location.

We have discussed above the various factors which influence the location of industry. It would appear from the discussion that these factors do not fall completely within the purview of Weber's Theory of Location. It would also appear from the discussion hat these factors do not ignore the Weberian consideration altogether. Thus, when transport, raw material or market considerations enter into the choice of location, Weber's Theory has imperceptible guided the choice of location. The factor discussion alone may go to suggest that in real life, many considerations other than those suggested by Weber, influence the decision to locate industry and, therefore, his theory should not be taken to be perfect or a soul guide in this respect.

5.   Infrastructure and Industrialisation

In technical language, infrastructure is the collective name given to those structural elements of an economy which facilitate the flow of goods and services between buyers and sellers. Examples of these structural elements are transport and communications housing power systems banking and insurance, etc. These are those basic services which form the foundation for all economic activities. A minimum of infrastructure must exist before economic growth and industrialisation can start. Besides, there are some other characteristics of infrastructure also, such as lumpiness of capital needed for it development, its capacity to create a huge employment potential, and its being developed primarily by the public sector perhaps because of long gestation period involved in its provision, etc.

Modern forms of industrialisation create a wars demand for infrastructure facilities. In fact, the process of industrialisation would get constrained due to the inadequacy and inefficiency of these facilities. Modern industrialisation is characterised by large scale production, linking of centres of production with distinct markets and sources of raw material and intermediate products, very large demand for inputs like fixed and working capital and power resources and quick supply of information by the communications network, and so on and so forth. Infrastructural facilities, which are delivered speedily, efficiently and at low cost, certainly aid the process of Industrialisation. It needs stressing that both the efficiency of delivery of these facilities to the using industries as well as the cost at which these become available are important for the industrialisation process.

We can take examples in this regard. One of the most important components of infrastructure is the transportation and communications network. It has to be efficient both in terms of speed as well as cost. Industries need raw materials, intermediates and sometimes feel like coal and petroleum to maintain a certain rate of production. These usually come from distant places, may be even from abroad. Similarly, the finished product has to be delivered in distance markets. The speed and the cost of transportation determine the efficiency with which these industrial operations would be performed. Same is the case with the communications network comprising of telephones, postal services, fax and E-mail services, etc. Industries need to be constantly in touch with the input-suppliers and their wholesalers

and retailers who are located at faraway places. The absence or inefficiency of these services will hinder industrial operations or will add to the cost of production.

The existence of an efficient financial market - in other component of infrastructure - aids the process of industrialisation. Financial market itself has important components like the banks, stock market, mutual funds, non-banking financial institutions, etc. A developed financial market helps in the intermediation of funds from the savers to the investors in desired quantities and at a low rate of interest. This surely helps the process of industrialisation.

Then, there are other important components of infrastructure like power houses, educational and training institutes and adequate as well as cheap housing facilities with determine the pace at which industrial development in a region or country will take place. Even medical facilities are necessary for industrial development, for the existence and efficiency of these facilities will keep the labour force physically fit and will obviously reduce labour absenteeism due to ill health.

It is clear from the foregoing that infrastructural development is a pre-requisite for industrial development. Besides, cheap and efficient infrastructural services are necessary for escalating the process of industrialisation.

Has infrastructure anything to do with industrial location, the main theme of this Lesson? The answer is in the affirmative. In a country like India, where infrastructural development is not uniform in different parts of the country, industries will tend to move to those regions where such development has taken place relatively more. Why have industry is got gravitated to mega cities in India like Delhi, Mumbai or Chennai? A major part of the explanation lies in the development of banking, transportation, communications educational facilities and so on, in these cities. This applies to States as well. Maharashtra Gujarat and Tamil Nadu are attracting industries more because of, among other things, their relatively more developed infrastructure.

In India as well as in other country is an important form of industrial infrastructure is in the shape of industrial estates. These developed sites for locating industries provide infrastructural facilities especially created to suit the need of different firms at one place. The public authority tries to provide banking, transportation, communication, water, gas, electricity and the facilities in the industrial estates so that individual firms do not have to separately fend for themselves in these respects. Naturally, such sites gradually become important hubs of industrial activity. Thus, infrastructural facilities play an important role in industrial location. This can be easily noticed in a rather negative sense, In areas and regions where there is a lack of facilities, industries do not get located even if rich raw material deposits or cheap and surplus labour exist in plenty.

Exercise

1.   What do you mean by industrial location?

2.   Write a short note on Weber's theory of location?

6. Summary

In this unit, we have discussed theories and measures of industrial location. In choosing an industrial location, the cost of production is one of the major determinants which includes land, labour, capital, raw materials, infrastructure, etc. The process of industrialisation involves setting up of more and more industrial units and naturally the question arises: where to set them up? The first attempt to present a theory of location was made by Thunen. However, it was Alfred Weber, a German economist, who presented a systematic theory of location in his work entitled "Theory of Location of Industries" published in 1929. Weber theory of location classified the general factors influencing location into regional factors and agglomerating and deglomerating factors. The regional factors are the primary important factors in determining the location of industries. The agglomerating and deglomerating factors only explain the concentration and dispersal concerning the original industrial location. However, Sargant Florence has looked at the problem of location empirically. He put forward three statistical concept to explain the phenomena of industrial location which are the location quotient or location factor the coefficient of localization and the coefficient of linkage.

7. Glossary

- **Agglomeration Economies:** The Agglomeration economies refers to the benefits that business gain by clustering together, including cost savings, knowledge sharing, and improved infrastructure.

- **Isodapane:** It is a theoretical tool used to assist in finding the optimal location for industry.

- **Infrastructure:** The basic physical and organizational structures and facilities needed for the operation of a society, including transportation, utilities and communication network.

- **Industrial Location:** Industrial location refers to the strategic placements of various economic activities about specific factors like land, labour, capital, etc.

- **Weber's Theory of Industrial Location:** Theory of Weber explains that the optimal location of an industry is determined by various factors such as labour and transportation cost.

8. Answers to Self Check Exercise

Answer to Q1. Refer to Section3.

Answer to Q2. Refer to Section.

9. References/Suggested Readings

- Barthwal, R. (1984). Industrial Economics, Wiley Eastern Ltd., New Delhi.

- Florence, P.S., & Baldamus, W. (1948). Investment, Location and Size of Plant. The University Press. Cambridge.

- Hoover, E.M. (1948). Location of Economic Activity. Mc Graw-Hill.

- Losch, A. (1954). Economics of Location. Yale University Press.

10. Terminal Questions

Q1. What is Weber's Theory of Industrial Location? What are the crucial factors in determining optimal location for an industrial unit?

Q2. Discuss the measures of Industrial Location.

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LESSON-15

REGIONAL DISTRIBUTION OF INDUSTRIES IN INDIA

STRUCTURE

1. Introduction

2. Learning Objectives

3. Regional Distribution of Industry before Independence

4. Regional Distribution of Industry Post-Independence Period

5. Location of Major Industries in India

6. Policy measures for Dispersal of Industries

7. Summary

8. Glossary

9. Answers to Self Check Exercises

10. References/Suggested Readings

11. Terminal Questions

1.   Introduction

In the preceding Lesson you studied the theories of location of industries and the factors determining such location, including the role of infrastructure in the process of industrial location. In the present Lesson we shall take up the question of location of industries in India. Besides, we shall also try to notice how the regional distribution of industries has changed in the post-independence period. We shall also briefly deal with the government policy bearing on the question of industrial location and its dispersal to different regions of the country.

2.   Learning Objectives

After going through this lesson, you will be able to:-

- Understand the concept of Industrial Regions.

- Analyze the Historical Trends in Industrialisation.

- Classify Industries based on Geographical Regions.

- Understand policy Measures for Dispersal of Industries.

3. Regional Distribution of Industry before Independence

During the British rule in India there emerged a regional pattern of industrialisation in the country which led to strong agglomerating tendencies in this respect. In other words, industry got concentrated in a few pockets within the country. Several factors, including the commercial policy of Britishers, development of the network, especially railways and availability of capital and raw material, played their role in regional concentration of industry in the country.

As a result such tendencies cities like Bombay, Calcutta and Ahmedabad dominated the industrial scene in the country. Bombay and Calcutta alone accounted for 42% of the total registered factories and represented 67% of the total paid-up capital and manufacturing industries and these contributed 60% of the total industrial output of the country in 1951. Even more striking was the fact that these 2 cities are counted for only 12% of the urban population of the country but as much as 53% of the total industrial workers of the country.

Clearly, the coastal towns, seats of British power in India, commercial centres and those with relatively more developed infrastructural facilities, alone could boast of any industrial activities in the country. And such towns in centres were located only in a few states (then called provinces) of the country like Bengal, Madras, Bombay, etc. as they were called then which accounted for a major share of industrial activity of this country. Thus, before independence, regional growth of industry was highly skewed with most states of the country hardly having experienced any industrial development. It was but natural that in the post-independence period balanced regional industrial development became an important goal of planning.

4. Regional Distribution of Industry in Post-Independence Period

It is obvious that in the pre-independence period economic, historical or other factors led to the concentration of industries only in a few cities as well as provinces of the country. After 1950, when planned economic development was undertaken and industrialisation given a special priority, greater disposal of industry and its more even regional distribution were given a greater thrust. This was done through various measures under the general direction of the industrial policy of the government. We shall discuss these measures in a subsequent section of this Lesson.

In the post-independence period, several studies have focused on the question of 'spatial distribution of industrial activity', 'regional aspects of industrialisation' in India. The general objective of such studies have been to notice how far the process of planned development and especially the measures adopted for dispersal of industry or industrialisation of backward regions have succeeded in ensuring more balanced regional industrial development of the country. More precisely, economists and policy makers have been concerned over the question: Is industrial development still concentrated in the States (provinces) where it was primarily located in the pre-independence period, or new regions and states have also partaken in the industrialisation process during the post-independence period. For this purpose, such studies have used measures or criteria like this share of each state or region in the total and employment, productive capital, value of output or net value added. On the basis of these measures, States have usually been classified into industrially

developed and industrially backward categories. Inter-temporal data, covering the period since 1950, have been used to arrive at the conclusion whether industry still continues to be concentrated within a few States, especially those which had dominated the industrial scene at the beginning of this period, or new States with higher rates of growth of industrial development have emerged since then.

We may refer to the studies of R.H. Dholakia, R.T. Tewari and J.C. Sandesara on the subject. Besides, since the question of balanced regional industrial development took the shape of policy measures to take industry to the backward areas, the Planning Commission had commissioned two studies, viz. Pande Working Group (1969) and Sivaraman Committee (1980) which had also dealt with the issue of regional distribution of industry and inter-temporal change in its profile.

Most studies have used inter-scale changes in factory employment as the index of spatial distribution of industrial convenient to calculate the share of each State of the country in the total factory employment. When such data are used for a particular year, it will give a good idea of which are the industrially more advanced states i.e. which of them have large shares in total factory employment and which backward. Then when such data for different years are studied, one can notice whether over time the same States continue to be industrially advanced or the share of new States in factory employment tends to increase. In the former case, dispersal of industry would be absent, but if latter in the case, then even former industrially backward States would be shown to be subsequently getting industrialised.

In terms of share of each State in the total factory employment of the country four States, viz. Bombay (which were later split up into Maharashtra and Gujarat), W. Bengal, Madras (Later re-named as Tamil Nadu) and Uttar Pradesh were the leading industrial States of the country in 1951. Their share in total factory employment was 26%, 22%, 14% and 7% respectively. Thus, these four States alone accounted for nearly three-fourth of the total factory employment of the country. This shows a highly skewed spatial distribution of industry in India at the time of independence. As will be observed in the next section of this lesson, the industrial policy and economic planning in the post-independence period have stressed the need for a more balanced regional distribution of industry. The effort has been to attract industry to the relatively backward states and regions. For this purpose, each State government has tried to offer special incentives to entrepreneurs to set up their enterprises in its territory. The question then is: Have the incentives offered to attract industry to the relatively backward State borne fruit? In other words, has the policy of dispersal of industry succeeded, and if yes, then to what extent?

In order to answer these questions, we may look at data provided in the Table below:-

Table

Share of States in Total Factory Employment (percentage)

States	1960	1971	1986-87
Maharashtra	21	21	16

W. Bengal	19	17	10
Gujarat	9	9	9
Tamil Nadu	9	9	11
Uttar Pradesh	8	8	9
Bihar	7	6	5
Andhra Pradesh	6	5	9
Kerala	4	4	3
Madhya Pradesh	4	4	5
Panjab	3	2	4
Karnataka	2	6	5
Haryana	-	2	3

In the Table which covers a period of nearly 26 years (1969-1986). States have been arranged in the descending order of the share of each of them in India's total factory employment in the year 1960. For that year, it would be noted, in the place, that the Four States, viz. Maharashtra, W. Bengal, Gujarat and Tamil Nadu, were the leading industrial States of the country, accounting for nearly 60% the total industrial employment. Secondly, the Table shows figure for only twelve States of the country. These States among themselves had a combined share of as much as 92% of total factory employment of the country in 1960. That means that the remaining13 States and Union Territories had a combined share of only 8% in the total factory employment of the country in that year.

In what respects has the spatial distribution of industry, measured in terms of share of factory employment, changed over the next one quarter of a century since 1960? The following are some of the conclusion which emerge in this respect from the figure in the Table given above:-

First, Maharashtra, Gujarat. W. Bengal, Tamil Nadu and Uttar Pradesh have continued to be the most industrialised states of the country over this period, accounting for more than half the factory employment of the country, although their combined share has declined during the period.

Secondly, Maharashtra and W, Bengal, the two most industrialised States since the British period still maintained their dominance in this respect even in 1986-87, although their share in factory employment (especially that or W. Bengal) has tended to decline over the years. At the same time, States like Tamil Nadu, Andhra Pradesh, Haryana and Karnataka have improved their position and are thus the newly emerging industrial States of the country.

Thirdly, the preceding two points amply demonstrate that, with the traditional industrial States losing their share somewhat and at the same time new States improving their position in this respect, there has been a gradual dispersal of industry in the country. Partly the emerging opportunities have been seized by the backward industrial States and partly the policy measures aimed at a more balanced regional industrial development have borne fruit. Data available for the year 1992-93 shows that the above mentioned trends have continued even after 1986-87. Thus, in 1992-93, the share of Maharashtra and W. Bengal in employment has further fallen to 15% and 9% respectively, while that of Andhra Pradesh and Tamil Nadu had risen to 11% and 12% respectively. The process of dispersal of industry away from the traditional industrial States to Newer locations has continued well into the 1990s.

Fourthly, even though there have been unmistakable signs of a more even distribution of industrial activity in the country, yet, as is clear from the Table given above, the twelve States enlisted in the Table given above, still accounted for about 90% of the factory employment of the country in 1986-87. Obviously the remaining 13 States and Union Territories even though accounting for far less population and geographical area of the country compared to the twelve figuring in the Table, have experienced very little industrial development in the post-independence period.

J.C. Sandesara, from his study of regional distribution of industry in India, draws the broad conclusion that "inter-state disparities have narrowed". According to him among the reasons for the early location of industry only in a few States were, availability of physical and social infrastructure, large markets of metropolitan towns, port locations and cheap transportation and these being following by advantages of agglomeration. However, after a time diseconomies of agglomeration, like failure of infrastructure to keep lace with requirements, rise in wage rates, inadequate housing, aggressive trade union activity etc. at original locations start appearing. So the next best locations become more attractive. The process of re-location of industries in these next best locations has been aided to some extent by the provision of incentives for location of industrial units in these other States. Sandesara mentions Haryana, Karnataka and Punjab among the next best intermediate position State which have attracted industry in the post-independence period. They occupy an "intermediate position" between the industrially more advanced States and the least developed States.

5. Location of Major Industries in India

We now turn a study of location of the major industries of India. It will be useful to see how economic considerations as embodied in the Weber's Theory of location and other factors have influenced industrial location in India. We take up major industries below:-

(a) Cotton Textile Industry:- This industry employs the largest number of workers and the value of its annual output is also the highest. From these two points of view Cotton Textile Industry is the largest industry in our country. The location of such a large industry is important from the point of view of distribution of economic activity as between different regions in the country. One can find cotton mills nearly in every State today but majority of them are located in Maharashtra, Gujarat, Tamil Nadu and West Bengal. Initially, the industry got localised in and around Mumbai but later on it moved to other parts of the country. This

initial concentration, however, is reflected in the relative distribution of industry between different parts of the country even today.

Around 1925, the cotton mill industry was predominantly localised in the City island of Bombay. The localisation was absolute in the sense that largest number of mills were there, so much so that the share of other regions was practically insignificant judged in relation to the industrial population as a whole, the localisation was again unmistakable. The City and island of Bombay alone employed a little less than half of the industrial workers employed on the Cotton-Mill Industry of India. The share of the Bombay Presidency in the Cotton-Mill workers of the country as a whole was about 67 percent. The other provinces and States had a relatively very small share in the industry. Thus, Madras had 7.8% U.P. 5.9% C.P. 5% Bengal 3.6%, Punjab o.3% and al the industry was localised in a particular region which may be called the Bombay Presidency region. Another interesting aspect of the location of cotton textile industry has been that as within a region also the industry got localised in a particular area to the complete exclusion of other areas of that region. Thus, in Madras the industry was mainly localised in the district of Coimbatore. Madras and Tinnevely while other districts like Bellore, Cuddapah and Tanjore had relatively very small share in the distribution of the industry. Similarly in U.P. the industry was localised in the Western districts (e.g. Kanpur) almost to the complete exclusion of the eastern districts. Thus the dominant characteristic of the location of Cotton Mill Industry in our country was not only localisation from the point of view of distribution of the industry between different regions of the country but also localisation in particular areas within a region. There are several reasons which explain the initial localisation of Cotton Mill Industry in and around Bombay:-

(i) Bombay had Parsi and Bhatia Merchants who possessed, besides financial resources, considerable experience of business management and organisation. These merchants pioneered and promoted many a cotton textiles mill in Bombay. In the earlier days, yarn trade with China offered an additional advantage in favour of localisation of Bombay. (ii) Banking and marketing facilities had already developed in Bombay which were not available at other centres. Besides, plentiful supply of cheap labour from neighbouring districts of Konkan, Sholapur, etc. as also availability of technical and professional services at Bombay attracted the industry to this area. (iii) Availability of economical transport was a very important factor in attracting cotton mill industry to Bombay. The city enjoyed the advantages of cheap sea-freight on imported materials. The industry imported machinery and other equipment and had a decided advantage in transport cost on account of its insular position as compared with up-country centres. The transport cost in this respect was lowest at Bombay and the cheap transport of raw materials to Bombay only emphasised the advantage. Bombay was very well connected with the hinterland, the black soil cotton belt, on account of its being a junction of main railways. This also connected it with the market of piece-goods. Thus, there was hardly any alternative location which enjoyed comparable transport advantages. In terms of Weber's analysis the law of transport orientation was at work. (iv) Bombay had a natural climatic advantage. Being near sea-coat, it had a humid climate. The yarn would not snap as frequently as it would do under dry climate conditions. Humidifiers had not been invented then and therefore the humid climate of Bombay provided suitable and favourable conditions for the production of textiles.

The industry witnessed dispersal after 1925. The dispersal trend set in after 1921 and the depression in the Bombay textile industry in 1923 accentuated the dispersal. There were

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many other important factors which contributed to the dispersal of the industry. In terms of Weber's analysis, agglomeration came to an end by 1921 and deglomeration trends set in. This is clear from the following points:-

(i) Concentration of agglomeration of the industry in Bombay led to an abnormal increase in rents, taxes and charges for municipal services in Bombay. Evidently the cost of production went up. Under such conditions the industry would easily disperse to other alternative locations provided they are economical in this respect, other thing being more less the same. (ii) Many Indian States like Hyderabad, Mysore and princely State of Rajasthan attracted the industry by offering facilities in the form of free or cheap land, remission of taxes, etc. The industry, therefore, moved to new locations. (iii) Considerations of availability of power have generally tied industry to particular places. With the development of hydro-electricity on account of completion of hydro-electric projects in Madras, Mysore and Central Provinces (now U.P.) the industry had a wider choice in respect of location and moved to these areas. (iv) Concentration of Industry in and around Bombay led to a rise in wages and therefore, inflated the wage costs. On the other hand, other parts of the country such as Coimbatore, Bangalore, Ujjain, Agra, etc. had low paid labour available. The industry, therefore, could be located in these places with advantage; for transportation of the raw material to these centres would not have been a disadvantage on account of the fact that cotton 'is a pure raw material' and (v) The development of means of transport and communication in the country made it possible to reach markets easily. Cotton mills, therefore, sprang up in Sholapur, Kanpur, Nagpur, Indore, Bangalore. Madras, Baroda, Delhi and other places as it was possible to explore the markets nearby. The first up-country mill was located at Kanpur. (iv) The availability of financial facilities and emergence of entrepreneurs at other centres also helped the dispersal of the industry. One of the reasons of the industry getting located at Ahmedabad was that financial facilities and entrepreneurial ability existed there as much as at Bombay.

(b) Jute Industry:- Jute industry is predominantly localised in West Bengal. A very interesting feature of the location of jute industry consists in the fact that like cotton textile industry it uses a pure raw material but unlike cotton mill industry it has not shown dispersal trends. The original place of location has retained that importance. It is really interesting to find that in terms of Weber's theory, an industry which uses pure raw material cannot be bound to the place of raw material and is most likely to shift to centres of consumption or market. But the raw material controlled location of jute industry runs contrary to Weber's analysis. Evidently other factors have played a very important role in the location of jute industry. These are as follows: (i) An industry can develop only when capital and enterprise exist to co-ordinate various factors of production. The Scottish Enterprise and capital being available in Calcutta, the entrepreneur's liking for city life attracted the industry to this location. (ii) Every industry needs power and the fact that power is easily available somewhere nearby it is a very important factor in attracting an industry to a location. Areas in and around Calcutta offered this advantage. Coal deposits in West Bengal and Orissa made cheap power available and this exerted its influence in locating the industry in this area. (iii) In early years of the development of the jute industry accessories and mill stores were all imported. Manufactured jute was an item of export. The insular position of Calcutta was suitable from both these point of view. Imports would involve less cost as they have not to be transported further to the interior of the country, the industry being just there. The transport of

finished goods to Calcutta which would have entailed substantial transport cost was also saved on account of the industry being located there (iv) Beside the above advantages, this area happened to be near the place of raw materials also. The location, thus, came to possess the advantage of being raw material controlled as also market controlled location. (v) There is a network of waterways which makes transportation of raw jute from centres of production to centres of manufacture very cheap. If the jute mills were to be located in the jute growing belt of East Bengal in the initial phases of development of jute industry the transhipment would have taken place twice. Once coal, mill stores labour, etc., would be moved to the mills and later the finished goods would have to be moved to Calcutta for marketing and export. By locating the industry around Calcutta the transport had to be undertaken only once and this meant a great economy in transport cost. Besides, Calcutta port is easily accessible to the mills located in the Hoogly Riverine, and for an industry depending upon external or foreign market for its prosperity, this undoubtedly is a very important locational advantage. (vi) Finally, the humid climate of the region provided a suitable atmosphere for the manufacture of jute and this factor also influenced the choice of location.

The jute mills are highly concentrated in a small area lying above and below Calcutta along the bank of river Hoogly. The strip of land is 60 miles long and 2 miles wide. More than 90 percent of the manufacturing capacity of the industry lies in this tract. The greatest concentration exists between Rishra and Naihati, a 15 mile-belt from North to South. Titagarh, Jagatdal Sibpur, Budge-Budge, etc. are some of the most important centres of the industry. Another very interesting feature of the location of jute industry is that no mill was located in the principal jute growing belt of East Bengal. Thus, when India was partitioned in 1947 and West Bengal came to India and East Bengal became a part of Pakistan, we had the situation that all jute mills were with India but the principal raw material growing area was with East Bengal. It was described as an attempt to keep the two countries in tension; for non-availability of jute would make Indian jute mills idle, whereas Pakistan could find market for its jute abroad and could also set-up its own jute mills, thus jeopardizing one important industry of India.

We had 106 jute mills in 1946-47 is undivided India. The jute industry has shown signs of dispersal but the dispersal trend is not very marked. The industry has witnessed the location of some units in Tamil Nadu, Bihar, Orissa and U.P. The dispersal is not explained in terms of the usual deglomeration factors given by Weber. It was (i) the availability of jute-fibres in these areas which attracted the industry to these new locations and (ii) the development of sugar industry in Uttar Pradesh and Bihar and increased the demand for jute gunny bags for packing sugar. These factors attracted the industry to these new locations. Even today the importance of the original location of jute industry remains and the industry, in spite of the fact that it uses a pure material has not found it possible and profitable to disperse to divergent places.

(c) Sugar Industry:- Sugar Industry is the second major agro-industry of the country. It is a raw material controlled industry and its location is, therefore, largely governed by the availability of sugar cane. Sugarcane, the raw material of the industry, is the weight-losing material and therefore, in terms of Weber's theory of location sugar industry should be located near the place of the raw material. The raw material loses about 90 percent of its

weight in the process of manufacture. Thus 100 quintals of sugarcane would produce around 10 quintals of sugar. Eastern Uttar Pradesh and Bihar are the largest sugarcane growing areas of the country. Therefore, the industry is highly localised in Uttar Pradesh and Bihar which account for 70 percent of the productive capacity of the Industry. The importance of the raw material arises not only on account of its being a weight losing raw material but also on account of the fact that raw material accounts for 50 to 67 percent of the cost of production of sugar. The following factors explain the location of sugar industry in eastern Uttar Pradesh and Bihar: (i) The physical and climatic factors are responsible for extensive sugarcane cultivation in this part of the country and have eventually led to the location and concentration of sugar industry in this area. (ii) Sugarcane is grown in compact blocks. Its cultivation is not scattered. This gives the industry an advantage with regard to availability of raw material. A sugar mill located in a given area can draw upon the compact block of cultivation of its supply of raw material. It assures easy and adequate supply. (iii) The industry is not so much dependent on the availability of power as other industries are. Thus availability of power as a factor influencing location does not exercise any significant pull in the industry. Bagasse obtained as a by-product is used as a source of power to raise steam to run the machinery. This, therefore, helps the industry to remain raw material controlled and power does not become a push factor this case. (iv) Availability of cheap labour is another factor which has contributed to the concentration of sugar industry in this region. Uttar Pradesh and Bihar are populous states of India and there is abundance of labour. In terms of Weber's theory, labour centres with unlimited supply can be easily assumed to exist near the place of raw material. (v) There is not scarcity of water for washing and cleaning purposes on account of canals, rivers, wells and tube wells existing in the region. Besides, water as a source of irrigation has helped in the growth of sugarcane cultivation and thereby helped in the concentration of this raw material controlled industry.

A careful reflection on the factors which explain the concentration of sugar industry would lead one to conclude that this industry can disperse only with the dispersal of raw material centres. Therefore, dispersal of the raw material centre could play a major role in the dispersal of this industry. The industry has witnessed dispersal in recent years precisely for this reason. Thus, in Bengal during the thirties jute prices fell and lead towards shrinkage in areas under jute cultivation. Area under sugarcane cultivation increased and eventually lead to the setting up of the sugar mills in Bengal. Sugarcane cultivation increased in Hyderabad and Mysore princely states with the completion of irrigation schemes like to Irwin Canal in Mysore, Nizamsagar and Tungbhadra projects in Hyderabad (Andhra) and Cauvery, Mettur and Periyar irrigation projects in Madras, now Tamil Nadu. The industry has thus, shown dispersal trends and moved to Tamil Nadu Andhra Pradesh, West Bengal, Maharashtra and Punjab. Maharashtra and Tamil Nadu enjoy natural advantages with regard to cane cultivation. The sucrose content there is higher, being 13.5 percent as compared with 11.5 percent in U.P. and Bihar. The cane crushing is longer. On account of these advantages and the emergence of sugarcane belt in these parts of the country sugar industry has dispersed to be located in these areas also. It is, however, interesting to note that this is for sell has not been accompanied by any decline in the places of original location.

Sugar industry illustrated the operation of Weber's theory better than any other industry. It is raw material controlled and is therefore pulled to the place of raw material on

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account of the weight-losing character of the raw material. Eventual dispersal is also based primarily on the availability of raw material elsewhere.

(d) **Iron and Steel Industry:-** Using Weber's analysis, let us first understand whether the iron and steel industry has tendency to have a raw material controlled location or a market controlled location. This necessitates a look into the nature of raw material. The iron and steel industry uses iron ore, coal, limestone and dolomite besides certain metals and refractory materials as its raw material. These raw materials, therefore, pull the industry towards the place of raw material as it would affect significant economies in transport costs. On the other hand, certain other factors, such as the possibility of utilising the by-products of coal in ancillary and subsidiary industries and extensive use of electric furnaces lead to locations which provide economy in the use of power, etc. These factors pull the industry to alternative locations. It has been observed that iron and steel industry has by and large followed the law of transport orientation propounded by Weber. The industry has tended to get localised near the place of minimum transport cost. If this happened to be near the deposit soft coal and iron ore, the industry, was located there. On the whole, raw materials have exercised a greater pull on data street as compared with the markets, with the result that the industry has tended to be localised near raw material deposits. It is largely on account of the fact that iron ore and coal deposits exist in close proximity and the inland transport is quite expensive that making location at a place other than the place of raw material is uneconomical. On the other hand, the market for iron and steel is spread all over the country. Therefore, no substantial economy is likely to be expected if the industry is located near any particular place identified as market. The nature of location of this industry is thus raw material controlled, with transport calls underlying the choice of location.

The concentration of the iron and steel industry in Bihar and West Bengal is largely on account of the availability of coal and iron ore in close proximity. The Iron and Steel Company is located at Jamshedpur. Iron ore is available (within a radius of 50 miles) from Guruma Hisani, Okampad, Badamoahar and Noamundi deposits whereas coal, limestone and dolomite are also available in the neighbourhood, all within a radius of 400 miles. Thus, the location of Jamshedpur is largely due to the fact that raw materials are available nearby. Besides, this site has certain other advantage s. Two perennial rivers Kherkai and Subaranrekha supply continuous water for cooling purpose throughout the year. Calcutta is far off, being only at distance of 152 miles, affording a big market for the product by itself and at the same time affording excellent export facilities. The story of the location of the Indian Iron and Steel Co., at Hirapur and Kulti is also similar. It lies in the coal mining area, has excellent transport relations, and gets iron ore mainly from Notu Busu and Bubu Buru which are a little farther than the coal mines. Mysore Iron and Steel Works locates at Bhadrawati in Karnataka state has all the raw materials within a radius of 30 miles. The iron ore its available at a distance of 26 miles South of Bhadrawati (Kemmagundi ore-fields in Bababudan range) limestone deposits are at a distance of 13 miles at Bhandigunda deposits.

The location of public sector projects in iron and steel industry are also largely raw material controlled. The Rourkela plant is 257 miles away from Calcutta. Limestone quarries lie in this area. Besides, a new limestone quarry has also been located in the area. The coal field area and the plant site are connected by rail, 75 percent of the requirements of coal are drawn from Bokaro Barma colliery and the remaining 25 percent is drawn from Jharia coal-

field. Bhilai, in Madhya Pradesh has iron ore deposits only 60 miles away at Rajhara. Nor limestone quarries have been developed at a distance of 12 miles from Bhilai. Bokaro, Kargali and Jharia fiels in Bihar and Korba supply coal, MANDIRA Dam built across the river Sankh provides an unfailing supply of water to the Rourkela plant. Similarly a system of reservoirs at Tandula and Gondle supplies water to the Bhilai plant. Durgapur steel plant depends for the supply of iron ore on the new mines at Belani in Orissa and for the supply of limestone on Brimlapur Hathibari areas. The water supply has been arranged through a channel made out of Damodar river by the DVC (Damoddar Valley Corporation).

6.   Policy Measures for Dispersal of Industries

After the attainment of independence, Indian leaders and policymakers identified several national objectives to be pursued through planned economic development. In the industrial sector, the objectives included acceleration of the rate of industrialisation and more balanced regional distribution of industry. We noted at the beginning of the preceding lesson that at the time of independence of the country, industrial activity was confirmed to a few States (then Provinces) like Bombay, Madras and West Bengal. Even within these provinces the industrial activity had tended to buy highly localised in their metropolitan cities like Calcutta, Bombay and Madras. This was highly unsatisfactory locational profile, since this prevented other areas from deriving benefits of industrialisation. Besides, as seen earlier, too much localisation of industry at one point starts generating diseconomies of agglomeration and calls for its dispersal to other more economical locations. The need for achievement of the goal of regional balance in industrial development was emphasised in the constitution of free India, adopted in 1950, the industrial policy resolutions and the Five Year Plans.

(a)   Promotion of Industry in Backward Areas:

Against the background of the large scale industry being concentrated mainly in three or four states of the country at the time of independence. Industrial Policy Resolution, 1956 had laid down that "only by securing balanced and co-ordinated development of the industrial and agricultural economy in each region, can the entire country attain higher standards of living". Till 1968, however, precious little was done to achieve the above-mentioned goal. In 1968, the National Development Council (NDC) laid down the necessary criteria for identification of industrially backward areas. The NDC appointed to working groups, one to identify the industrially backward states and districts on the basis of those criteria, and the second to recommend the fiscal and financial incentives for the identified industrially backward areas. The first group i.e. the Pande Working Groups identified 13 states and Union territories as industrially backward and suggested the selection of 20 to 30 districts in the country for special assistance for industrial development. Pandey Group's recommendations were, however not accepted by most states. Therefore, the Planning Commission evolved suitable criteria for the identification of the industrially backward districts on the basis of which 246 such districts were finally selected for special incentives and assistance for their industrial development.

The other Working Group – Wanchoo Working Group recommended fiscally ad financial incentives for the identified industrially backward districts, such as exemption for the investors in these areas from income tax, excise duties, sales tax, etc. for 5 years, and

provision of transport subsidy. These recommendations were broadly accepted and implemented by the government.

The incentives for industrial development of industrially backward areas have come from three sources, viz. The central government, the state governments and the All-India financial institutions. The central government incentives for industrial units set up in such areas include the following:-

(i)   A 20% deduction of profits for computation of taxable income for income tax purposes, for a period of 10 years.

(ii)   Central Investment Subsidy ranging between 25% 10% of investment made (with the former rate being applicable to the no industry districts, and the lower rate to the somewhat less backward districts).

(iii)   Transport subsidy to the extent of 50% of expenditure incurred on the movement of raw materials and finished products.

Besides, these, the state governments have provided additional incentives to industrial units set up in their respective territories comma in the form of industrial infrastructure such as industrial sheds and plots, preferential purchase of goods produced by them, and other concessions.

The all-India financial institutions like the Industrial Development Bank of India, the Industrial Credit and Investment Corporation of India, and Industrial Financial Corporation have also been providing assistance too industries in backward areas in the form of confessional loans and participation in as well as underwriting of their share and debenture issues. Besides, other promotional measures, such as preparation of feasibility studies for investment projects in backward areas and under taking entrepreneurial training programs, etc. are also adopted by these institutions.

Evidence, however, seems to suggest that despite the list of such incentives for development of industry in backward regions being as impressive as is evident from the foregoing these have yielded less than expected results. The National Committee for the Development of Backward Areas appointed by the Government at the beginning of the Sixth Five Year Plan noted cases of diverse run of resources made available by the Centre for the development of backward districts to the relatively more developed ones. It found that the central investment subsidy had benefitted only a few districts which were located in close proximity to the industrially developed districts.

Some of the drawbacks of the programmes for industrial development of backward areas were provision of subsidies on the basis of capital investment rather than employment offered in backward areas, planning of the programs in financial terms rather than on the basis of physical needs and potential; failure to program the development of agreement for a story based industrial enterprises in these areas soon as to integrate such industry with the local resources; and diversion of funds from backward to relatively developed districts, as noted above.

(b)   Establishment of Public Sector Enterprises in industrially backward areas:

Some big public sector enterprises have actually been set up in relatively backward areas. These include the steel mills in Bhilai, Durgapur and Rourkela, the Antibiotics factory at Haridwar, the fertilizer plants at Nangal and Vishakapatnam, to name but only a few of them. The idea behind locating them in industrially backward areas was that these projects would act as catalytic agents for industrial growth of such areas. It is true that with the establishment of these public sector enterprises in industrially backward regions, such areas have acquired prominence on the industrial map of the country for acquired prominence on the industrial map of the country for the first time. However, the expected catalytic role of these projects in sparking off an industrial revolution in these areas has not materialised. One reason has been that these projects, being based as they are on capital and skill intensive techniques could not strike roots in the local economies of the backward areas. The Draft Five Year Plan (1978-83) had stated that "Our experience with large industrial projects and backward areas shows that their spread effects are low and the surrounding areas continue to remain poor and undeveloped". The public sector enterprises failed to stimulate the growth of ancillary industries in their vicinity in backward areas.

(c)   The use of Licensing Policy:

One of the objectives of the industrial licensing policy, which had been in vogue till 1991, was to encourage grant of licenses liberally for industries set up in the backward regions. However, actual experience has lead bare the inadequacies of the licensing policy in this respect. In fact, the Industrial Licensing Policy Inquiry Committee (1967) had found that he four industrially advanced states of Maharashtra, Gujarat, West Bengal and Tamil Nadu has corned as much as 62% of the license issued till them. The National Committee for the Development of Backward Areas (1980) has pertinently observed that the licensing policy was a negative policy instrument in that licenses could be denied to the applicant but through this policy applicants could not be created out of nowhere. It is because of the failure of licensing policy in this and other objectives that it has all but been given up under the new industrial policy of 1991.

Exercise

1.   Write a short note on regional distribution of industries in India.

2.   Discuss regional distribution of industry before independence.

7.   Summary

As we have noted earlier in this lesson, there has certainly been some regional dispersal of industry in the post-independence period, although it is difficult to say how much of that dispersal is due to the above-mentioned policy measures and how much to the general process of economic development in different parts of the country. Thus, taking average daily employment of factory workers per lakh of population as the index of industrialisation, it has been noted that in 1985, eight states figured above the national average of 1050 workers which would means that these eight states (Maharashtra, Gujarat, West Bengal, Tamil Nadu, Haryana, Karnataka, Kerala and Panjab) can be considered as

industrially more developed. But rest of the states were still backward in terms of this index. Indian industry is, therefore, no longer as spatially concentrated as it was at the time of independence although we are still far from the goal of relative regional balance in industrial growth of the country.

8. Glossary

- **Agglomeration Economies:** Agglomeration economies exist when firms and people locate near one another together in cities and industrial clusters.

- **Industrial Location:** Industrial location refers to the strategic placements of various economic activities about specific factors like labour, land, capital, etc.

- **Policy Measures:** Industrial policy is the measure a government takes to promote and regulate the development of a country's industries.

9. Answers to Self Check Exercise

Answer to Q1. Refer to Section 3, 4, 5.

Answer to Q2. Refer to Section 3.

10. References/Suggested Readings

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11. Terminal Questions

1. Discuss the regional distribution of Industries before and after Independence in India.

2. Examine the geographical dynamics of major industries in India.

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LESSON-16

INDUSTRIAL FINANCE IN INDIA

STRUCTURE

1.   Introduction

In the present lesson we shall discuss the nature and problems of industrial finance in India. There was a time when industry was organised on an individual proprietorship basis and such industry was run essentially on a tiny scale. However, as you have already noted in the first lesson, wherever an industrial revolution has taken place, the scale of production has risen, use of machinery has been accentuated and firms have been organised on the joint stock principle. All this has immensely enhanced the importance of finance for industry. Huge amounts of capital have to be sunk in fixed investment in industries. Besides the fixed capital requirement of modern firms, working capital is needed to meet the daily, weekly and monthly expenditure requirement of firms the form of wage payments, purchase of fuel and power and the need to pay routine bills and meet other contractual obligations. Industries mobilise finances to meet their fixed and working capital requirements from broadly two sources, viz. internal and external sources. The former is nothing but that part of the profits of the firm which are retained after payment of divided to the shareholders. There are primarily two external sources of finance: borrowed funds capital. The latter is mobilized by firms through sale of shares in the capital market.

Small scale and large scale industries have different types of financial requirements and their sources of capital are also typically separate from each other. In the present lesson we shall confine ourselves to the discussion of industrial finance primarily for medium and large scale industry in India.

2.   Learning Objectives

Upon completion of this lesson, you will be able to:

* Know about sources of industrial finance in India.

* Explore the roles and functions of financial institution.

* Analyse various financial instruments.

* Understand nature and problems of industrial finance in India.

3.   Sources of Industrial Finance

Industrial firms need finance for various purpose like making investment in permanent assets such as factory building, plant and machinery etc., building up inventories of raw materials, fuel and finished products, as also for meeting their working capital requirements like payment of wages and salaries, meeting their monthly bills of electricity, water etc. Firms meet their financial requirements from diverse sources. As noted above, these diverse sources have been broadly classified into the internal sources have been broadly classified into the internal sources and external sources, categories. We shall discuss the nature, composition and the relative important of these sources below:-

(a) Internal Finance:- Industries have access to finances existing within and belonging to themselves, which are of these types: their paid-up capital, their reserves and surpluses built out of retained or ploughed back profits and their various types of depreciation funds. Internal finance can be used by them for investment whenever either external sources are difficult to tap or these are somewhat costly to mobilise. In India industries depended upon the internal sources of finance to the time of nearly 60% in the early 1950s when the process of planned industrialisation had been barely set into motion. This was a period when the capital market was highly undeveloped and therefore, industrial firms had a fend for themselves so far as their financial requirements were concerned. However, with the development of the capital market, the firms started accessing that market and thus the relative importance of internal sources of finance has tended to decline. After nearly four decades of planning, i.e. in the early 1990s, the share of internal finance in total industries finance has declined to nearly 30%. This source constitutes what are termed as the corporate savings. The funds are generated within the firm and these form the savings of industrial enterprises after they have met various demands on these finds such as payment of direct taxes to the government and dividend to the shareholders. The firms fall back upon this source of finance when the opportunity cost of such funds is low or external funds are more costly to mobilise. However, just as in our country, everywhere industry is run primarily on funds tapped from the capital market which form the external sources of finance. We turn to the discussion of these sources next.

(b) External sources:- These funds are mobilised by industrial firms from the capital market inside the country of from abroad. In the early 1990s, the external sources of finance to industry accounted for nearly 70% of their total financial requirements. The capital market is accessed by the firms for their financial requirement. We shall discuss the nature of the

capital market in India more fully in the next section. Suffice it to say here that the external source of finance to India industry comprises the following: Equity capital and loan finance. The latter becomes available to industries from commercial banks, term-lending, institutions, public deposits and foreign loans and equity. Out of the foregoing sources, equity capital and loan finance from commercial banks and term-lending institutions are covered under capital market, which we shall briefly refer to public deposits and foreign loans and equity.

Among the sources of external finance, public deposits have made an appearance only during the last decade or so. Through advertisements in the newspapers the industrial firms sometimes seek deposits from the public, at fixed rate of interest and for periods usually varying between one to our years. In terms of amount of funds so mobilised it is not a very important source of finance to industry. Yet, it is an innovation added by the firms to their kitty of sources of credit. One feature of this source is that, unlike other external sources, the debtor (the firms) and the creditor (the depositors) forge a direct link with each other. This attracts criticism for this mechanism of mobilisation of finance. It is pointed out that the capital market acts as mediator between borrowers and lenders. This mechanism ensures largest returns to the investor but cheap credit to the borrowers. Public deposits, in the absence of financial intermediation, lack this desirable feature. Besides these funds become available at the most for the medium terms and therefore, do not satisfy the long-term financial requirements of firms. In any case, these deposits have so far formed only a small proportion of the total financial resources that get mobilised of Indian industry.

Another source of industrial finance that lies outside, the pale of Indian capital market is foreign loans and equity. Indian industries have been tapping foreign capital in the form of foreign loans which are borrowed either from multilateral financial institutions like International Finance Corporation, Asian development Bank, etc. or more recently through accessing foreign banks etc. The last mentioned source has some to be called external commercial borrowing (ECD) for which prior approved of the RBI is necessary. Besides, some Indian Industrial firms also enter into collaborations with foreign firms (Maruti-Suzuki, Hero-Honda, etc. being examples) under which the foreign partners are expected to bring in foreign capital for investment in the joint venture. Even foreign capital forms an insignificant proportion of the total financial needs of Indian industry.

4.   The Capital Market

Major proportion of industrial finance in India comes from the capital market. Its different components help mobilise both loan finance as well as equity capital. The capital market helps in the purchase and sale of long term financial instruments which are traded in the money market. The long term assets which are bought and sold in the capital market include stocks, shares, debentures, bonds, etc. Such a market consists of buyers and sellers of these assets. In India, the main components of the capital market are the commercial banks, the state and all-India level term lending financial institutions, and the stock market. So far as commercial banks are concerned, strictly speaking they are supposed to provide only short term loans to finance trade and commerce of the country. Yet in India the commercial banks have started going beyond their traditional domain of operations and they also trade in industrial securities. They help their clients in acquiring stocks, shares and debentures of companies. Currently, nearly all the nationalised commercial banks have

separate subsidiary divisions like the SBI Capital Markets Ltd. and PNB Capital Services Ltd. which act as managers to the new capital issues of companies. This has given rise to the emergence of merchant banking in the country. The merchant banks, usually subsidiaries of commercial banks, provide such financial services to industries as managing and underwriting new capital issues, syndication of credit, provision of advice on fund raising, etc.

Another component of the Indian capital market is the state-level and the all-India term-lending financial institutions. We shall discuss this component of the capital market in greater detail subsequently.

Let us discuss the various components of the capital market below:-

(a)   The Stock Market

Although capital market is a much wider term, as noted above, yet in India sometimes the terms capital market and stock market are synonymously used. That only shows that the significance of the stock market in popular perception in recent years has been rising.

It needs to be understood that the shares, debentures and bonds, which are traded in the stock market (stock exchanges as they are called) have two types of markets: the primary market where new issues are purchased and sold, and the secondary market where the already issued stocks are traded. The stock exchanges fall under the latter market.

The Indian stock market has developed tremendously during the last about a decade and a half. This is partly because there has been a great upsurge in the number of joint stock companies who shares and debentures are traded in the stock market. In 1960, there were nearly 30,000 registered companies in India. By March, 1996 their number has risen to over 4 lakh an increase of about 13 times.

Along with the foregoing growth of the corporate sector, the stock market has also grown quite rapidly, although until about the mid-1970s, the growth of this component of the Indian capital market had been quite tardy. For instance, between 1963 and 1971 the capital raised through new capital issues had risen only from Rs. 50 crore to Rs. 80 crore. Contrast these figures with the capital raised through new issues in the subsequent period. By 1981-82 the figure had risen to Rs. 305 crore, and it had mounted to Rs. 14,300 crore in 1996-97. That speaks volumes for the growth of the primary stock market which ultimately determines the growth of the secondary market, i.e. the stock market because the new issues sold today will find their way into the stock exchanges tomorrow.

Along with the foregoing indices the growth of stock market in India, some more positive features need to be noted. In the first place, during the last two decades a new class of investors in the stock market, mainly consisting of relatively younger salaried persons has emerged. With the entry of this new class of investors in the stock market there has been a considerable widening of the investor base in that market. Secondly, the trading of scrips in the stock market is no longer restricted to only a few well-known companies. Now a fairly large number of firms have placed their shares and debentures for trading in that market. Thirdly, a new chapter has been introduced in the history of growth of the stock market in India, with the introduction of on-line computer screen based trading of shares in the early 1990s. This is being done in 20 out of 22 recognised stock exchange in India.

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Fourthly, since Mumbai has been the traditional financial capital of the country, with the oldest stock exchange, the Bombay Stock Exchange (BSE), operating there, the govt. established a new stock exchange there in 1994. This National Stock Exchange (NSE) has all the features of a modern stock trading market. Earlier, the BSE was transacting nearly 70% of the stock trading business of the country. The NSE has now emerged as the leading stock broking market. This is clear from the fact that in 1997-98, the total trading turnover (i.e. total value of transactions carried out) of NSE was higher than that of BSE.

Finally, in the wake of the liberalisation of the economy, foreign institutional investors (FIIs) have been permitted to trade in Indian Stock Exchanges. This portfolio investment by the FIIs helps in creating immense demand for shares of Indian companies and at the same time beings in much needed foreign exchange. When the stock market conditions are favourable, huge quantities of foreign funds flow into the country through this route.

However, while the foregoing are some of the welcome features of the growth of stock market in recent years. The reprehensible feature of the stock market in India is now fairly notorious case labelled as the securities scam – the stock market scandal which rocked and shocked the entire nation in 1992. As a backdrop of this scam it needs to be noted that the stock markets the world over are amenable to manipulation by the speculators and stock brokers. Sometimes due to changes in the economic and political climate, but sometimes due to speculative activity, the share prices fluctuate a little too widely. Sudden rise in share prices brings windfall gains but sudden declines cause wiping out of considerable financial wealth of the investors.

The stock prices In India have tended to fluctuate a little too violently, primarily on account of activities of speculators. Thus, the BSE Sensitive Index (called Sensex), with 1978-79=100, was 1960 on 1st January, 1992 but had risen to 4300 on 20th April the same year on account of the securities scam. Even after that the fluctuations have been quite marked, with the index varying between 2037 and 4286 in 1993-94, 3600 and 4604 in 1994-95, but remaining quite depressed since 1996. In 1997-98, the sensex has fluctuated between 3224 and 4306. In 1908, the stock market has especially remained depressed due to political uncertainty within the country, but primarily due to recession in the Asian economies and the fall in the value of Japanese Yen and Russian Rouble. In August, 1998, the Sensex was narrowly fluctuating around 2000.

Till 1988, new capital issues were subject to regulation under the Capital Issues (control) Act, 1947. Rapid growth of the stock market during the 1980s necessitated a stronger regulatory mechanism to deal with such issues in this market as rigging the share prices by brokers and speculators, delays in the grant of permission for new capital issues, lack of transparency in market transactions, etc. The Act of 1947 was, therefore, repealed and its place was taken by a non-statutory body called Securities and Exchange Board of India (SEBI) in 1998. However, in 1992 the SEBI was converted into a statutory body set-up under an Act of Parliament. The main objectives of the SEBI are to protect the interests of the investors in stocks and shares, to promote the development of the securities (share, bond) market and to regulate activities in this market.

For achieving these objectives the SEBI takes, among others, the following measures: regulating the business in stock exchanges, registering and regulating the working of stock

brokers and other functionaries in this market; regulating collective investment schemes, such as mutual funds; prohibiting insider trading in shares; regulating acquisitions and take-overs of companies; monitoring various activities in the stock exchanges, and performing such other functions as may e assigned to it by the government.

With the strengthening of the powers of the SEBI, the interests of investors in the stock market are getting better served and the transactions in this market have become more organised orderly and transparent.

(b)   The All-India Financial Institutions

The world over, special financial institutions have been set up to provide medium and long-term loans for industries in order that industrial growth may take place. Various industries require long term capital for a period of up to 20 years of for constructing buildings for purchasing land and sophisticated capital equipment. When capacity expansion takes place then also this type of finance is required. They also require medium term finance for a period of one to 7 years.

Special financial institutions are also known as development financial institutions (DFIs) for their role is to provide finance for promoting and developing industries. Thus they have a promotional and developmental role. The DFIs not only provide medium and long term loans but also performs such promotional functions as underwriting of shares, guaranteeing loans, providing technical and administrative assistance and so on. Of course, these functions vary from one DFI to the other.

Development banks or term lending institutions in India were set up in the post Second World War period. The Reserve Bank of India has played an important part in setting them up and in regulating their working.

The need for setting up special financial institutions was emphasised by the Industrial Commission in 1916 and then by the Central Banking Enquiry Committee in 1931, which recommended the establishment of Provincial Industrial Finance Corporation and also considered the setting up of an All India Industrial Finance Corporation. In 1954, the Shroff Committee considered how and to what extent, if it all, commercial banks could supplement this role. The industrial finance corporation was set up in 1948. Thus, it was the first long-term financial institution set up in India to provide promotional and developmental finance for Indian industries. The necessity to establish similar institutions at state level was also felt and the State Financial Corporations Act was passed in 1951. Under this Act, a number of State Financial Corporations have been set up. In addition, there are State Development Corporations also.

In 1955, the Industrial Credit and Investment Corporation of India (ICICI) was set up to provide facilities for underwriting corporate securities and for directly purchasing shares and debentures of corporations. The National Small Industries Corporation (NSIC) was also set up in 1955 to give assistance under its hire-purchase scheme to industrial units by way of supply of machinery. A number of State Development Corporations were set up after 1960 to undertake promotional and developmental functions in different states. In 1958, the Re-finance Corporation was set up which was merged in the Industrial Development Bank of

India (IDBI) in 1964. This Bank was to operate as the central coordinating agency for industrial finance. The Unit Trust of India was set up in 1964 to encourage savings and investment and to enable small savers to participate in capital appreciation. The Industrial Reconstruction Finance Corporation of India (IRCI) was set up in April 1971.

These institutions provide under-writing facilities for sale of corporate securities. They also provide long term finance on adequate security. They have also played a leading role in developing the stable capital market in the country. They have contributed to the structural development of the capital market in India.

We shall discuss below the main financial institutions both at the All-India level and State level. We shall be concerned with IDBI, IFCI, ICICI, IRCI, SFCs and SIDCs in as much as they are the main term lending institutions of DFIs in the country.

(i) The Industrial Finance Corporation of India:- It was set up in 1948 under the IFCI Act to provide medium and long term credit to industry, specially when normal financial sources could not meet the situation or recourse to the capital market was not practicable. The setting up of this corporation was the first major step taken by the Government to bridge the institutional gap that existed in the Indiana capital market at that time.

This corporation provides financial assistance to public limited companies or cooperative societies registered in India. In the beginning, the provision of financial assistance was restricted to firms engaged in manufacturing or processing of goods, mining and generation and distribution of gas or electricity. The Act has been amended several times. The IFC has been providing the block capital requirements of industries for setting up new industrial projects and for the renovation, modernisation, diversification and expansion of the existing industries.

While granting financial assistance, the corporation takes into view the nature of security offered, competence of management, adequate supplier from material and technical personnel, etc. Information is required for applicants who seek assistance from the corporation on location of the concern, availability of power, technical staff, repaying capacity of the applicant before the corporation grants financial assistance. The corporation sends its experts to inspect account books of the borrowers, who discuss the proposal with the promoters of the firm.

Forms of Assistance:

When it is satisfied regarding the claim of the applicant concern for financial accommodation, assistance is provided in one or more of the following forms:-

(i)   Loans to the concern can be granted up to a period of 25 years and debentures repayable within the same period can also be purchased by the corporation.

(ii)   The corporation can underwrite the issue of securities of the concern. It has to dispose of the shares so coming to it within a period of seven years. It can keep them with it beyond seven years with the permission of the Industrial Development Bank of India.

(iii)   It can guarantee loans raised by industrial concerns in the market, repayable within a period of 25 years. It can also guarantee loans raised by industrial concerns from scheduled banks or from State Cooperative Banks.

(iv)   It can also guaranteed deferred payments regarding import of capital goods from outside India and also the purchase of capital goods inside India.

(v)   With the prior approval of the central government, it can guarantee loans raised from our credit arrangements made by the Industrial concern with any bank or financial institution in a foreign currency.

(vi)   It can also act as agent for the Central Government and with the approval of the Central Government, it can act as agent for the IBRD in respect of loans granted or debentures subscribed by either of them.

(vii)   It can subscribe to the stocks or shares of any industrial concern.

(viii)   With the approval of the IDBI it can acquire the undertaking including the business assets and liabilities of any institution, the principal objective of which as the promoting or development of industry in India, or grant of financial assistance for such promotion and development.

From the time of its inception up to March 1996, the total financial assistance sanctioned by IFCI aggregated to Rs. 33,700 crore. The assistance went to such priority industries as cement, fertilisers, power generation, paper, industrial machinery and so on. In a single year 1995-96 its financial assistance amounted to Rs. 5720 crore.

In July 1993, the IFCI was converted into a public limited company under the Companies Act, 1956. It has diversified its activities into merchant banking so as to provide such services as project counselling, syndication of loans, assisting in amalgamation and mergers, as well as rehabilitation of sick units, etc. During 1995-96, its Merchant Banking and Allied Services Department handled 884 such assignments.

(ii) Industrial Development Bank of India (IDBI):- The Bank was established in July, 1964 under an Act of Parliament. It was felt that IFCI, ICICI, SFCs and the Re-finance Corporation for Industry Ltd. could not meet the increasing needs of industrial enterprises and therefore, a new institution was necessary.

Its authorised capital is Rs. 50 crore, but the Reserve Bank of India can increase it upto Rs. 100 crore with the approval of the Government of India. It is wholly owned subsidiary of the Reserve Bank of India. Its direction, superintendent and management rests with the Board of Directors, which is constituted by the Central Board of Directors of the Reserve Bank of India.

The IDBI was set up to reorganise and integrate the structure of industrial financing institutions in the country. It supplements an augments resource of the existing terms lending institutions and also of commercial and cooperative banks in respect of term lending. The pre-existing Re-finance Corporation of India, was merged with the bank. The IDBI is not only

a financing agency, it is also a developmental agency for planning, promoting and developing industries too fill up the gaps in the industrial structure of the country.

Its functions are broader and more flexible than of other term lending institutions. It is authorised to finance all types of industrial concerns in the public and private sectors. The bank's activities can be divided into two categories: (i) assistance to financial institution and (ii) direct assistance of industrial concerns. The first category includes such activities as refinancing of loans given by government, subscribing to their securities and rediscounting of bills arising from sale of machinery on deferred payments terms and medium export credits granted to exports by eligible credit institutions.

Direct financial assistance given by the IDBI to industrial concerns in the form of loans and advances, subscribing to, purchasing and underwriting the issue of stocks, shares, bonds or debentures, guaranteeing deferred payment due from industrial concerns to third parties and loans raised by them in the open market or from financial institutions. An important feature of the operations of the IDBI is participation with other institutions in granting direct loans or underwriting business.

Besides, direct loans to industry, refinance facility of industrial loans and export credit, under-utilised and direct subscription to shares and debentures of industrial firms and direct loans for exports, the Bank also provides assistance for industrial development of backward areas and small scale sector. It also raises funds from the international market and provides foreign currency to industrial units in India.

Between its establishment in July, 1964 and March 1966, the IDBI had sanctioned financial assistance of about Rs. 1,16,500 crore. Some of the new services introduced by the Bank include Venture Capital Fund, Technology upgradation, Equipment finance, Asset credit and Equipment leasing.

(iii) Industrial Credit and Investment Corporation of India (ICICI):- The ICICI was set up in 1955 as a public limited company with government support to finance industries and to do underwriting business. It grants long and medium term loans in rupees and foreign currencies. It underwrites issues of shares and debentures and also directly subscribes to them. It also guarantees deferred payments arrangements for supply of machinery as also payment of loans by other institutions. Its main objective is to enlarge the capital market by mobilising investment. If, therefore, works close co-operation with other financial institutions like IFCI, IDBI, SBI, SFCs, etc. It assists any limited company in the private sector. The assistance may be for establishing new enterprises or for expanding and modernising an existing industrial undertaking. It can extend any amount of assistance to a single company. Normally, the corporation limits its investment in any one company upto Rs. 1 crore. Foreign currency loans for all companies in a group do not ordinarily go beyond Rs. 3 crore.

Its establishment was a landmark in the field of special financial institutions. The corporation is free from government control except that the government nominates a director on its Board.

The ICICI performs multifarious functions like promotion of new industries, assistance, expansion and modernization of existing industries, provision of technical and managerial

support, besides grant of equity and loan capital. The total financial assistance sanctioned by it between 1955 and March 1996 amounted to Rs. 66,170 crore

The corporation also started leasing corporations in 1983. It provides leasing assistance for computerisation, energy conservation, pollution control, etc.

Besides the foregoing activities, ICICI has promoted some companies and institutions for carrying cut specialised activities. These institutions are: Credit Rating Information Services of India Ltd. (CRISIL); Technology Development and Information Co. of India (ITDICI); Programme for the Advancement of Commercial Technology (PACT); and Programme for Acceleration of Commercial Energy Research (PACER).

Besides the above-mentioned specialised financial institutions there are also some others like the Industrial Reconstruction Bank of India set up in 1984 to help revitalisation of the sick industrial units, and which since March, 1997 has been converted into Industrial Investment Bank of India as limited company, as well as state level DFIs such as State Financial Corporations and State Industrial Development Corporations and finally, Small Industries Development Bank of India set up specially to promote and finance small scale industries. These are, however, not being dealt with in detail here. For these, you may look up Further Reading No. 2 of this lesson.

5.   Critical Appraisal of Industrial Finance in India

We have noted in this lesson earlier that with the acceleration of industrial growth rate as well as the strengthening of the industrial structure of the country, while on the one hand, the financial needs of this sector of the economy have multiplied, on the other hand, capital market has also changed beyond recognition. The DFIs are an innovation of the post-independence period. The share market has also been strengthened a great deal especially after the mid-1970s. The capital market has been channelling huge quantities of funds into the industrial sector. Although liquidity sometimes, yet finances in general are not a problem for meeting fixed and working capital needs of the industrial sector. The structure and working of the all-India DFIs have been strengthened and rationalised during the last few decades. New state-level DFIs have been created during the period. Same has been the case with DFIs created for the small-scale industrial sector. The funds flowing through the stock market into the equity portfolio of the industrial firms have also grown phenomenally, especially since the early 1980s. The regulatory mechanism for safeguarding and trusts of investors in the stock market as also to promote orderly growth of the market has taken a healthy shape during the period.

However, in spite of the impressive growth of the Indian capital market and improvements in its structure, there are still many drawbacks that can be noticed in the general area of industrial financing. These are briefly discussed below:-

(i) Weaknesses of the stock market:- Though the primary and secondary segments of the stock market have immensely developed in the last two decades, yet both the segments are plagued by several problems. Because of the problem in the secondary market which we shall refer to below, the primary market (where shares are offered for sale through new issues by companies) which boasted of mobilising huge amounts of equity capital at one

time has been a good as dead in 1996-97 and specially 1997-98. This is clear from the fact that the number of new issues floated in this market declined from 1726 in 1995-96 to 111 in 1997-98 and the amounted raised through these sales fell from Rs. 20804 crore to Rs. 4570 crore. In 1997 and 1998 Indian companies were reluctant to approach the capital market with new capital because of the very depressed nature of the stock market and issues to raise equity capital low investor confidence in the market.

The secondary market (where shareholders dispose off their existing holdings of shares and by shares from those who unload their holdings in the market), despite its impressive growth over the years has revealed several weaknesses some of the brokers and 'big bulls' like Harshad Mehta can manipulate the market and indulge in price rigging. Speculators have at times caused violent fluctuations in the sensitive index of share prices, L.C. Gupta and other in their book *Indian Stock Market P/E Ratio* argued that the high fluctuation in share prices is a predominant factor for small investors deserting the stock markets. Such volatile market conditions attract speculators but drive away the genuine investors.

(ii) Weaknesses of DFIs:- As noted earlier, specialised or development financial institutions have diversified their activities to promote industrial development and made impressive efforts to provide industrial finance. Yet, several weaknesses in their working have been observed. Sometimes the DFIs have been found to have relaxed their appraisal norms, resulting in financing of unviable projects and thus causing losses too the concerned financial institutions. The practice of making the DFIs finance the sick units has also had similar consequences. There has been a lack of competition among the DFIs in their financing and promotional activities, thus undermining their efficiency. The practice of consortium financing (i.e. joint financing) of projects leaves very little scope for industrialists to tap alternative sources in case their proposal is rejected by the consortium of the DFIs. The state DFIs have been found to be working like a wing of the state comments rather than us independent agencies. The Narasimhan Committee (1991) had recommended the broad-basing of ownership of DFIs, grant of greater functional autonomy to them, appointment of professionals as their chief executives, etc.

(iii) Problems of Commercial Banks as Components of Capital Market:- In India, the commercial banks have been operating in both the money market (i.e. the market for short term loans) and the capital market (i.e. the market for medium and long term finance). The latter provides industrial finance. The main problem of major commercial banks as components of the capital market arises from the fact that as components of the capital market arises from the fact that as nationalised banks their primary concern is with providing credit to the government. Thus, the commercial banks do by holding short and long term government securities. Under the provisions of statutory liquidity ratio (SLR) and credit reserve ratio (CRR), the commercial banks are required to invest mainly in the government securities. Thus, very little funds are left with them for making investment in the commercial sector. In recent years, the commercial banks have been seen to be watchful, reluctant and hesitant in providing credit to industry. Partly this is explained by the general conservative attitude of Indian banks and partly it is the result of scams and irregularities in the working of the banking industry brought to light in recent years. The rising proportion of bad debts (called the non-performing assets) of commercial banks is also contributing factor in this respect

Exercise

1. Discuss the diverse sources of Industrial Finance in India.

2. Critically examine the Industrial Finance in India.

6. Summary

This unit highlighted the nature and problems of industrial finance in India. Whenever an industrial revolution has taken place, the scale of production has risen, and firms has been organised on the joint stock principle. Therefore, industrial finance plays an important role in the industrial development of a nation. The diverse sources of finance have been broadly classified into internal and external sources. The internal sources of finance are paid-up capital, reserves and surpluses built out of retained or ploughed back profits and various types of depreciation funds. There are primarily two external sources of finance i.e., borrowed fund capital and capital market. The external funds are mobilized by industrial firms from the capital market inside the country and from abroad. However, some drawbacks that can be notices in the general area of industrial financing include weaknesses in the stock market, Development Financing Institution (DFI) and problems of commercial banks as components of the capital market. Therefore, the capital market in general and industrial finance in particular are afflicted with several problems which need rectification, especially given the globalisation of the Indian Economy, where Indian industry will have to improve efficiency to compete with MNCs within the country and superior rivals in the international market. Efficient methods of financing industry will be significant contributory factor in this respect.

7. Glossary

- **Capital Market:** A market capital is a financial market that deals in buying and selling of shares, and other long-term investment.
- **Development Banks:** Development Banks are financial institutions that help countries grow by offering long term money and support for important areas like agriculture, industry and infrastructure.
- **Financial Institution:** Financial institutions are the economic entities that help individuals and businesses with several financial services enabling them to deposit, save, invest and manage their monetary resources.
- **Globalisation:** Globalisation refers to the increasing integration of economies around the world, particularly through the movement of goods, services and capital across borders.
- **Industrial Finance:** The industrial finance pertains to the financial system that provides financial resources for the conduct of industrial activity.
- **Stock Market:** Stock market is a place where shares of public listed companies are traded.

8. Answers to Self Check Exercise

Answer to Q1. Refer to section 3.

Answer to Q2. Refer to Section 5.

9.   References/Suggested Readings

- Dutt, R. & Sundharam, K.P.M. (1998). Indian Economy. S. Chand and Company, New Delhi.

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10.   Terminal Questions

Q1.   What are the primary sources of industrial finance in India? How do these financial institutions contribute to the growth and development of Industrial Sector in the country?

Q2.   What do you mean by Capital Market? What are the various components of Capital Market?

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LESSON-17

INDIAN INDUSTRY: GROWTH AND STRUCTURAL CHANGE

STRUCTURE

1.   Introduction

2.   Learning Objectives

3.   India's Industrial Structure on the Eve of the First Plan

4.   Phases of Industrial Growth in India

5.   Change in Industrial Structure

6.   Summary

7.   Glossary

8.   Answers to Self Check Exercises

9.   References/Suggested Readings

10.   Terminal Questions

1.   Introduction

In the present lesson, we shall look at India's industrial sector as a whole. We shall particularly focus on (i) the nature of India's industrial structure as it obtained on the eve of the First Five Year Plan, (ii) the phases through which the growth of the industrial sector has passed between the First and the Eighth Plans, and (iii) the changes which have taken place in the industrial structure of the country. We shall take up each of these aspects of India's industrial development for detailed discussion below.

2.   Learning Objectives

Upon completion of this lesson, you will be able to:

•   Understand the historical evaluation of the Indian Industry.

•   Understand the phases of industrial growth in India.

•   Explore the change in industrial structure.

3.   India's Industrial Structure on the Eve of the First Plan

Modern industry in India took birth sometime in the middle of last century. During the British period since then some important consumer's goods industry like the cotton and

woollen textiles, sugar, matches, etc. had developed fairly well. Among the producer's goods the most notable industry to develop in this period was iron and steel industry. However, before the First Plan was launched, the consumer goods industries had dominated with their share in the total industrial output being more than 60 percent in 1951. This feature of industrialisation was the result of a policy of British period under the garb of laissez faire. For example, when the massive programme of railway development was pursued during this period all the equipment needed for the same was imported from Britain.

Besides the lop-sided structure of industry in the country over-all industrial development had attained only a low-level. Thus in 1948-49, factory establishments contributed only 5.6% to the GNP of the country. The total labour force employed in these establishments was merely 1.8% of the total labour force of the country. These quantitative indices of industrial development were in fact reflection of several determinants of industrialisation which were missing at this time even though the country had by now a history of nearly one hundred years of establishment of factory industry. One of these was a lack of a coherent, well-designed policy of industrial development. Another was a lack of basic infrastructural development in many parts of the country. Without infrastructure it is futile to expect the development of modern industry. Thirdly, there was a near absence of a capital market as well as reasonable stock of managerial and skilled manpower. It was, therefore, necessary that if a process of industrialisation was to materialise and the country after independence, these drawbacks were removed under well designed strategy. This task was left for the planners to be performed after 1951.

4.   Phases of Industrial Growth in India

Accelerated industrialisation of the country has been one of the goals of planning in India especially since the Second Five Year Plan. And as compared to the pre-planning period, the period since 1951 has witnessed a sea-change in the industrial scenario of the country. Today, the dissatisfaction with our industrial development mainly arises on account of the fact that some other less developed countries have done much better in this respect sense the 1950s. But as per our industrial growth during this period has been no mean achievement. There are several indices of industrial growth but just one index will make the point clear here. In 1947-48 this year of manufactured articles in out total exports was 49%. By 1997-98 this percentage had risen to as much as 76. so from a predominantly raw material exporting country India now has turned into a manufacturers exporting one, thanks to the industrial growth in the post 1951 period.

However, the rate of industrial growth has measured by the changes in the index number of industrial production, has been far from even. The forty-seven year period between 1950-51 and 1997-98 has witnessed different phases of industrial growth in the country. We shall discuss these phases in detail below and shall also summarise some of the explanations which have been given for the slow-down of industrial growth in the decade and how far after 1965 and more recently after 1995-96.

The rate of growth of industrial output in India is measured through two Indices: (i) the Index of Industrial Production (IIP), and (ii) the Annual Survey of Industries (ASI). The difference between the two is that while IIP is based on the production data received by the Director General of Technical Development (DGTD) directly from the factories (also including

those in the small scale sector) which voluntarily supply the same, the ASI is based on annual survey of industries conducted every year since 19589. Another difference is that while ASI reports figures in value added terms, the IIP refers to industrial output. The ASI is considered to be a more reliable source of data on industrial growth but it suffers from two drawbacks: (i) the delay of three four years in publication of such data, and (ii) its coverage being limited to only the registered factory sector. The two incides do not, therefore, provide identical rates of growth of industrial output and sometimes the difference between them is quite glaring. For example, Economic Survey, 1985-86 had noted that for the 1974-75 to 1982-83 period, while the IIP showed an annual average growth rate of industrial production to be only 4.4% the ASI showed it to be far higher at 8%. In order to remove the shortcomings of the IIP, the index was revised and improved with 1980-81 as the base year, and more recently in May, 1998 with 1993-94 as the base year.

In order to notice the uneven growth rate of industrial output in India, we may look at the plan-wise figure given in Table 1. It is interesting to notice in the Table that there are three distinct phases to be noted in the industrial growth of the country. The first phase covers the period of the first three Five Year Plans when the industrial growth rate was fairly high during the period, the average annual growth rate was close to 8%. However, this industrial growth rate could not be sustained subsequently and then followed the second phase of industrial growth in the country. It is to be noted in the Table that during the Fourth, Fifth and the Sixth Plans, the average annual growth rate was much lower than during the proceeding period. This second phase in industrial growth of the country is referred to as the phase of stagnation. Although there was a revival of sorts in the industrial growth after the mid-1979s, yet even during the Sixth Plan, the growth rates of the first three Five Year Plans had not been attained. The period of stagnation seems, however, to have ended by 1975-76. The Seventh and Eighth Plans can be considered as constituting the third phase of industrial growth.

TABLE 1

Plan-wise Rate of Growth of Industrial Output in India

S. No.	Plan Period	Annual growth rate (%)
1.	First Plan (1951-56)	7.3
2.	Second Plan(1956-61)	6.6
3.	Third Plan (1961-66)	9.0
4.	Fourth Plan (1969-74)	4.7
5.	Fifth Plan (1974-79)	5.9
6.	Sixth Plan (1980-85)	6.4
7.	Seventh Plan (1985-90)	8.5
8.	Eighth Plan (1992-97)	7.4

The later part of the third phase, i.e. the 1990s have experienced even more violent fluctuations in the industrial growth rate. This would be clear from the figures in Table 2 below.

TABLE 2

Industrial Growth rate in the 1990s

Year	Growth rate (%)
1990-91	8.2
1991-92	0.6
1992-93	2.3
1993-94	6.0
1994-95	9.4
1995-96	12.1
1996-97	7.1
1997-98 (upto June)	5.4

It is clear from the Table that during the eight years of this decade, the annual growth rate exceeded the Seventh Plan average only twice (i.e. during 1994-95 and 1995-96). In the early 1990s, it was the impact of the general economic crisis which pulled down the industrial growth rate. But after 1995 there has been what is variously called the industrial recession of slow-down in the industrial sector. We shall take up the causes of this latest declaration in the industrial growth rate.

First let us take up the industrial recession of the 1966-67 period. During the 1970s and the 1980s a heated debate took place among economists regarding the causes of the industrial stagnation in the country and about the genuineness of the acceleration of industrial growth in the 1980s. The economists who took part in this debate included K.N. Raj , Deepak Nayyar, Pradbhat Patnaik, I.J. Ahluwalia, R. Nagaraj, etc. I.J. Ahluwalia has written an authoritative book on this subject entitled *Industrial Growth in India: Stagnation since the Mis-Sixties*. The following explanatory hypotheses have been offered for the stagnation in industrial growth in India in its 1965-79 phase:-

(a)   **Poor Agricultural Performance:-** Economists like A. Vaidyanathan, K.N. Raj and Ashok Mitra had argued that inspite of the green revolution in India, performance in the agricultural front was poor. Therefore, the industrial sector, which has supply and demand linkages with the agricultural sector, could also not grow at a high rate. This hypothesis is, therefore, based on the argument that since the mis-sicties poor agricultural performance had acted as a constraint on the industrial growth of the country, thus resulting in the stagnation of the industrial sector.

(b) Declaration of Public Investment:- This hypothesis was offered by I.J. Ahluwalia, Sukhamoy Chakravarty, Pranab Bardhan and Prabhat Patnaik, etc. In India, a good deal of complementary between the public and the private sector has been observed, with growth in the former leading to growth in the latter. In the wake of Chinese aggression (1962) and Indo-Pak conflict (1965) as resources got transferred to defence and other non-productive needs, public investment got slowed down. Therefore, it is argued, the industrial sector-both public and private also could not maintain its growth momentum.

(c) Worsening Economic Disparities:- Deepak Nayyar, Ashoke Mitra, etc. have argued that since the planning process got underway in the 1950s, the gap between the rich and the poor has gone on widening. Income and wealth got more and more concentrated in the hand of a thin upper crust of the society while the majority of Indian masses became increasingly impoverished. The foremer, being numerically a very small proportion of the total population could not generate enough demand for the products of the newly set up and the old industries which, therefore, caused a slow-down in industrial growth.

(d) Exhaustion of opporutnies of Import Substitution:- It is true that the initial spurt in industrial activity in India in the 1950s and the 1960s took place due to the exploitation of possibilities of import substitution. However, in the very nature of the case, these opportunities had to exhaust, and did so by the mid-1960s. This, according to the argument, caused a stagnation in industrial growth in India. This hypothesis is also put forth in a slightly different form. It is argued that India started her programme of industrialisation in an inward looking form, based as it was on replacing imports with domestic production. Such as strategy has the obvious drawback that import substitution possibilities are strictly limited. Had India adopted an outward looking industrialisation strategy, as has been done by countries like South Korea, Where possibilities are relatively greater for development of new industries, stagnation in the country's industrial growth would not have occurred.

(e) Factors Generating Inefficiencies in the Working of Govt.:- This hypothesis has two stands: according to one, the regime of state controls and the regulatory mechanism throttled initiative and capital accumulation, and according by Pranab Bardhan, the coalition of Industrialists, large farmers and the bureaucracy (i.e. the white collar class) has so operated that one has tried to placate the other through a system of concessions and subsidies. This generated inefficiencies in the working of the government sector, reducing public savings and investible resources and unwanted shackling on the private sector. All this resulted in slowing down the industrial growth in the country in the post mid-sixties period.

There has been an unending debate on the validity of one or the other of the above-mentioned hypotheses. After going through the writings on this subject one gathers the impression that no single hypothesis is by itself adequate to explain the phenomenon of stagnation in industrial growth in the 1965-79 phase of industrialisation. Each one of the hypotheses given above has a grain of truth in it. In fact, several factors seem to have caused the phenomenon. These factors then are: (i) gradual fall in public investment, (ii) failure of the agricultural sector to register a robust growth rate (iii) gradual rise of socio-economic disparities in the country, (iv) drying up to import-substitution possibilities, and (v) deterioration of the fiscal discipline and the regulatory regime in the country.

Industrial Growth in the 1980s

During the 1980s there was an intense debate on whether in this decade the stagnation in the industrial sector of the country had indeed ended or whether the upturn in industrial production was merely a jugglery of figures given by the govt. As has been noted earlier in this lesson, in order to improve the quality of data of the IIP, a revised series of this index with 1980-81 as the base year, was adopted by the govt. The new series had shown a distinctly higher rate of growth of industrial output in India than during the period of the stagnation. The govt. which had started relaxing industrial controls after the mid-1970s claimed credit for its new policy regime due to which, according to these claims the 1980s had witnessed an end of industrial stagnation in India. However economists like C.T. Kurian and C.P. Chandrasekhar had argued that the govt. had tried to play with IIP data since in the new series the supposedly slow growing industries had been replaced with faster growing ones. So according to them the new series of IIP had an upward bias for growth rates in the 1980s. This had amounted to arguing that industrial stagnation had not in fact ended even during the 1980s. The opposite view that since the mid-1970s India had indeed registered higher industrial growth rates, which were distinctly above those registered during the 1965-75 period, was held by such economists as K.N. Raj and Y.K. Alagh.

In order to clinch the issue in this debate. R. Nagaraj in two articles in Economic and Political Weekly (July 1, 1989 and October 13, 1990) had, by using the alternative National Accounts Statistics data, demonstrated that "the growth rate of real manufacturing gross value added during 1980-81 to 1986-87 is not only higher than that during 1965-66 and 1970-80 but could also perhaps be comparable to that attained during the 1959-60 and 1965-66 period. This meant that the data used in the new series of IIP were genuine and the series was valid. This view was also endorsed by V.L. Kelkar and Rajiv Kumar (EPW, January 27, 1990)

A higher rate of industrial growth during the 1980s has been mainly ascribed by Kelkar and Kumar to the policy changes after the mid-1970s.

As would be noted in Table 2 above, the third phase of industrial growth, market by end of the earlier stagnation and comprising the period of the 1980s and the 1990s has been far from a period of uniformly high growth rates. Especially in the 1990s, there have been wide fluctuations in the industrial growth rate. Starting with 1991-92, we notice that in that year the growth rate was almost zero. Then, in the next two years, although there was some revival in the growth rate yet it was nowhere near that recoded during the 1980s. During 1965 and 1996, however, the industrial growth rate was fairly high. But in the next two years there has again been a deceleration in the industrial growth rate.

This latest declaration in the industrial growth rate (during 1907 and 1998) has been variously referred to as industrial recession or industrial slowdown. How do we explain this latest declaration in the growth rate? The various explanations given are: excess capacity built up in some industries, such as cement and automobiles in the earlier years, leading to the accumulation of stocks and resulting in decline in production; tight money and credit policies followed in 1995-96, thus leading to high real interest rates on credit to industry; the continuing slump in the stock market thus making it difficult to mobilise equity capital; a significant decline in growth to exports thus causing demand constraints for industrial

products; high level of political uncertainty and instability in the country which inhibits investment activity, etc.

The irony of the situation is that during 1997 and 1998, monetary and fiscal policies have been suitably modified to give a boost to industrial activity. In the central budgets of both 1997-98 and 1998-99 years, direct and indirect taxes have been reduced with this objective in mind. Monetary and credit policies have also been tailored to suit the need of trade and industry. Still, the industrial activity has not picked up. According to the National Council for Applied Economic Research, there was no prospect of an industrial recovery during 1998 because of a very low business confidence (which is a measure of the degree of pessimism among entrepreneurs), the prevailing high rates of interest and the economic sanctions imposed by some of the developed countries in the wake of India's nuclear tests.

5.   Change in Industrial Structure:

At the beginning of the present lesson we noted that on the eve of the planning period India has a lop-sided industrial structure, with consumer goods industries dominating the industrial scene of the country. For most of the capital and intermediate goods the country was hopelessly dependent on imports. The planners subsequently realised that the country must develop its own capital goods production capacity. The Mahalanobis model of planned development underlying the Second Plan was in fact based on the logic that the rate of growth of the economy depended on the volume of capital goods produced within the country. This logic actually determined the industrialisation strategy under India's Five Year Plans. Therefore, in the second and the subsequent Plans priority was given to the development of basic, capital goods and intermediate goods industries particularly within the public sector. The objective was to not only accelerate the rate of industrial growth but also to change the structure of industrial output. Change in the structure refers to the composition of output. Thus, as will be noted below, one major aspect of change in the industrial structure of the country has been the rise in the share of capital goods industries vis-à-vis the consumer goods industries in the total industrial output.

Before taking up for discussion of details of this change in the *output structure* of industry we may notice another aspect of the India's industrial sector. That is what may be termed as the *ownership structure* of the country's industrial sector. It is a well-known fact that at the time of independence most industries had developed within the private sector, with hardly any industry of the note having been developed by the public sector which was as good as no-existent then.

However, the planning period has seen a substantial change in this respect. Thus, the ownership structure of Indian industries has changes in a major way during this period, with the share of the public sector and to some extent that of the joint sector registering a noticeable rise while that of private sector corresponding declining. This is shown in Table 3 below.

TABLE 3

Percentage Distribution by Ownership types of Indian Industries (ASI)

S. No.	Ownership	Value of Production (average)		
		1973-74 to 1975-76	1979-80 to 1981-82	1993-94
1.	Public Sector	18.8	26.0	30.0
2.	Joint Sector	6.6	7.2	4.0
3.	Private Sector	74.6	66.8	66.0

Figures in Table 3 bring out two facts about the ownership structure of Indian Industries (covered under the Annual Survey of Industries) and the change therein since the 1970s. Firstly, during this period, the share of the public sector industries all but doubled. The share of the joint sector initially rose but later declined. It needs to be noted here that the Table covers only a period of nearly 20 years. If data are taken for the whole planning period, the share of the public sector would have risen for almost nil to nearly a third of the total industrial output. Secondly, it may be noted in the table that although the share of the private sector has fallen during this period, yet the sector still accounts for nearly two-thirds of the total industrial output of country. As is quite well known and as shall be noted in the following lesson, although the Second Plan and the Industrial Policy Resolution adopted during the Plan had visualised the public sector attaining commanding heights of the economy in the years to come, yet this vision has never been realised in the country. Thus, the industrial structure of the country did change in this respect during the planning period, yet the change has never been so drastic as to reduce the share of private sector in the ownership of industry to less than 50%. With the tide of economic policy changing in favour of private sector industry in the 1990s it can be safely presumed that there will be a reversal in the industrial structure in favour of that sector in the years to come.

Now let us take the discussion of change in the industrial structure from the angle of *composition of output*. At the time of independence, the composition of industrial output was heavily weighted in favour of consumer goods whose share in total industrial output was nearly 62%. But subsequent policy of attaining near self-sufficiency in the production of capital goods brought about a drastic change in the structure of industrial output and, therefore, in the relative importance of consumer and producer goods industries within the industrial sector. It may be noted in passing that the producer's goods are further sub-divided into the categories of basic goods, capital goods and intermediate goods, while the consumer's goods are sub-divided into the categories of durable and non-durable goods. In order to study the change in the structure of output within the industrial sector one needs to change in the share of these different categories of output over time. This is usually called *inter-temporal change* in the industrial structure of the country. Such a change is brought out by figures in Table 4 below.

TABLE 4

Change in the Composition of Industrial Output (By End-user Categories)

S. No.	End uses	Average annual growth rate (%)			
		1951-55	1960-65	1981-88	1992-97
1.	Basic goods	4.7	10.4	8.09	6.8
2.	Capital goods	9.8	10.6	9.99	8.9
3.	Intermediate goods	7.8	6.9	5.83	8.4
4.	Consumer goods	4.8	4.9	5.8	6.6
	(a) Non-durables	-	-	5.68	4.9
	(b) Durables	-	-	14.70	13.4
5.	General index	5.7	9.0	8.5	7.4

In Table 4 the composition of output is shown by *end-user categories*. In other words, output is classified according to the ultimate use to which a product would be put, such as use of output as an intermediate product, durable consumer's good, capital goods, etc. Another classification which is generally used for this purpose is called *input-based categories* such as agro-based mineral-based, chemical-based products, etc.

In Table 4 goods shown at S. No., 1 to 3 are the producer's goods, the consumer goods are further classified into non-durables, such as food and clothing, and durables such as dwelling places, T.V. sets, etc. These are shown at S. No. 4. For purposes of comparison with these categories the general index of industrial production figures are shown at S. No. 5.

The first point which clearly emerges from these figures is that over the entire period of 1951-97, the average annual growth rate of the producer's goods has been consistently higher than and that of the consumer's goods consistently lower than, that of the total industrial output as shown by the general index. In other words, during this period, the producer's goods industries have grown faster and the consumer's goods industries slower than the industrial sector as a whole. What is the implication of these differences in the growth rates of different categories of industries for the industrial structure of the country? It is quite obvious that such differences in growth rates would change the composition of industrial output, with share of the producer's goods rising and that of consumer's goods falling in the over-all industrial output.

Similarly, within the consumer's goods category, the growth rate of consumer durables has been higher than that of the non-durables. This would also mean that the share of the former would be rising and that of the latter falling in the over-all industrial output. These

changes in the share of different categories in industrial output, for the period 1960-97, are shown in Table 5.

TABLE 5

Changes in the Share of Major Industry Groups in the Industrial Sector

(per cent)

S. No.	Industry Group	1960-61	1979-80	1996-97
1.	Basic goods	27.5	39.8	36.4
2.	Capital goods	10.7	17.7	16.4
3.	Intermediate goods	21.0	16.3	20.5
4.	Consumer goods	40.8	35.3	23.7
	(a) Durables	2.5	4.9	2.6
	(b) Non-durables	38.3	30.4	21.1

The changes which would result in their share form the relative growth rate in major industry groups, as shown in Table 4 earlier, are depicted in Table 5. During the planning period, because the average annual growth rate of the components of producer's goods sub-sector was higher than that of the over-all industrial output, the result has been a rise in the *share* of these components in the output of the industrial sector. It would be noted in the output of the industrial output. It would be noted in Table 5 that the share of producer's goods in total industrial sector rose from 59.2% in 1960-61 to 76.3% in 1996-97. On the other hand, since the average annual growth rate of the consumer's goods component was lower than that of the over-all industrial output, the share of the former declined from 40.8% in 1960-61 to 23.7% in 1996-97. Within the consumer's goods sub-sector, because the durables showed a higher growth rate then the non-durables, the share of the former rose and that of the latter declined in the over-all industrial output. These figures thus bring out the *change in the industrial structure* of the country over the planning period.

This change in the industrial structure has rectified to an extent the imbalance that existed in the industrial sector of the country at the time of independence. Besides, the change has been the result of the strategy of industrialisation adopted in the second and the subsequent Five Year Plans.

J.C. Sandesara calls the above-mentioned inter-temporal change in the industrial sector of the country as the diversification of this sector. Truly, the Indian industrial sector got tremendously diversified in the post-independence period. A large number of new industries, especially belonging to the producer's goods category, came into existence during this period.

Exercise

1.   Write a short note on Industrial Growth in India.

2.   Examine the change in industrial structure in India.

6.   Summary

Summing up the discussion of this lesson on industrial growth and structural change, we may reproduce the conclusions reached by Sandesara in his study of the period 1947-91. On industrial growth, his conclusions briefly are:

(a)   Industrial growth in the recent past (1950-89) was 5.7% per annum, compared to just 2% per annum in the distant past (1901-46).

(b)   The plan targets were not too high or unachievable because, out of 38 years in the recent years in the recent past (1950-89), the industrial growth rate was 6% or more in each of 22 years.

(c)   Other countries of the world have done much better in this respect during the period. Taking the 1965-80 period, India ranked 56th in a list of 81 countries of the world in terms of industrial growth rate. However, with the industrial growth rate in India rising in the 1980s, the country's rank improved to 9th in a list of 98 countries during the 1980-86 period.

On the question of structural change, Sandesara's conclusion is that the industrial economy of the country has undergone tremendous diversification over the period. The relative importance of basic and capital goods activities and of the public sector in industrial production has greatly increased over the period. Of course, with the adoption of the policy of liberalisation and privatisation in 1990s, the rate of growth of the public sector industry must surely have slowed down and that of the private sector industry got accelerated.

7.   Glossary

- **Industrial Structure:** The industrial structure stands for the main composition of country's social economic production and can be divided into primary industry, secondary industry and tertiary industry.

- **Industrial Growth:** Industrial growth refers to the increase in the output and productivity of industrial sectors within an economy over a specified period.

- **Structural Change:** Structural Change refers to significant shift in composition, organisation and dynamics of industries within an economy overtime, including changes in sectoral importance, technological innovations and market structure.

- **Technological Advancement:** Technological Advancement refers to innovations and developments in technology that enable improvements in production processes, product quality, efficiency and competitiveness across industries.

8. Answers to Self Check Exercise

Answer to Q1. Refer to section 4.

Answer to Q2. Refer to Section 5.

9. References/Suggested Readings

- Ahluwalia, I.J. (1985). Industrial Growth in India: Stagnation since the Mid-sixties, Oxford University Press.

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- Kelkar, V.L., & Kumar, R. (1990). Industrial Growth in the Eighties: Emerging Policy Issues. Economic and Political Weekly, 25(4), 209-222.

- Nagaraj, R. (1990). Industrial Growth: Further Evidence and Towards an Explanation and Issues. Economic and Political Weekly, 25(41), 2313-2332.

- Nagaraj, R. (1989). Growth in Manufacturing Output since 1980: Some Preliminary Findings. Economic and Political Weekly, 24(26), 1481-1484.

- Sandesara, J.C. (1992). Industrial Policy and Planning, 1947-91. Sage Publication.

10. Terminal Questions

Q1.   Examine the industrial growth trend in India during the planning period.

Q2.   What do you mean by change in industrial structure? How does change in industrial structure impact the overall industrial growth of a country?

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LESSON-18

GROWTH OF PUBLIC SECTOR INDUSTRY IN INDIA

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STRUCTURE

1.   Introduction

2.   Learning Objectives

3.   The Rationale of Expanding Role of Public Sector

4.   Organisation of Public Sector Industries

5.   Appraisal of Performance of Public Sector Enterprises

6.   Public Sector Enterprises Efficiency and their Special Constraints

7.   The Joint Sector in India

8.   Summary

9.   Glossary

10.   Answers to Self Check Exercises

11.   References/Suggested Readings

12.   Terminal Questions

1.   Introduction

These days, when liberalisation and privatisation are buzz words and there is indeed a strong trend towards downsizing the government sector all over the world, public sector industry seems to be an anachronism. However, in India at least there was a time in the immediate post-independence period when all public policy aimed at making the public sector attain the "commanding heights" of the economy. Industrial Policy and the Five Year Plans of this period tended to convert the Indian economy into a mixed economy, with both private and public sectors existing side by side. The Industrial Policy of 1956, which notwithstanding periodic modifications remained in operation till 1991, had reserved important segments of industry for the public sector. Besides, the Policy had made it clear that any industry, even if otherwise left for private enterprise, could be started within the public sector. The Second Five Year Plan had set the tone in this respect when it declared that "In the field of modern industry, finance and trade, the role of the public sector is likely to expand rapidly". Since then, there has been a strong policy thrust towards expanding the scope of operation of the public sector in Industry and other components of Indian economy.

Making small beginnings in the 1950s, public sector industry expanded rapidly in the subsequent years, as would be clear from the figures given in Table 1 below.

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TABLE 1

Number of Enterprises and Investment in Public Sector Industry

S. No.	Year	No.	Capital Employed (Crores of Rs.)
1.	1950-51	5	29
2.	1960-61	48	953
3.	1970-71	87	3606
4.	1980-81	168	18207
5.	1990-91	236	102080
6.	1995-96	239	173870

The statistical overview of the public sector industry shown in Table 1 brings out the fact that the sector has been growing rapidly, especially in the post-1970 period. During the 1950-96 period, both the number of public sector enterprises (PSEs) and the capital employed in them have multiplied several times. By the mid-1990s, an astronomical amount of Rs. 1739 billions had been invested in the PSEs. It is interesting to note in the Table that even if the earlier infatuation with socialism had been given up by the mid-1970s and in fact a policy of liberalisation had been initiated since then and particularly after 1991, growth of the PSEs, both in their number and capital employed has continued unabated.

TABLE 2

Share of Public Sector in Gross Value Added in Manufacturing

S. No.	Period	Share (%)
1.	Average 1961-65	8.5
2.	Average 1971-75	10.7
3.	Average 1981-85	12.4
4.	Average 1986-88	13.4

Figures in Table 2 clearly show a rising trends in the share of public sector in gross value added in manufacturing. It rose from 8.5% in the Third Plan period to 13.4% in the Seventh Plan.

2. Learning Objectives

Upon completion of this lesson, you will be able to:

- Understand the rationale of expanding role of public sector.

- Understand the Organisation of Public Sector Industries.

- Evaluate the performance of public sector enterprises.

- Assess the efficiency and constraints of public sector enterprises.

3.   The Rationale of Expanding Role of Public Sector

It may be asked why the government thought of assigning such an important and expanding role to the public sector. In India as well as in other less developed countries, there were some special reasons for giving a pride of place to this sector. These are as follows:-

In the first place, in the initial stages of industrialisation there were many industries in which the investment requirements were so high that the private sector could simply not be expected to muster all the necessary resources for them. Secondly, in some of the industries the profitability was typically low as a result of which private investment was likely to remain inhibited in them. Thirdly, risk and uncertainty are greater in these countries, especially when the markets are not fully developed and articulated, government policy is uncertain and changeable, supplies of inputs are not assured, and so on. The public sector had, therefore, to come forward to make investments and bear the initial risks. Fourthly, sometimes foreign collaboration becomes necessary because of lack of technical know-how of scarcity of foreign exchange or skills. Such collaboration can be sought and arranged more easily by the government than the private enterprise. Finally, the development of a public sector becomes necessary to speed up the process of industrialisation to attain certain socio-economic goals (like curbing concentration of economic power), and to exercise a more effective control on the productive apparatus of the economy. Besides, it must be added that in India as well as other developing countries public sector was propped up on ideological considerations. The national leadership in the immediate post-independence era had socialistic inclinations. So private sector was looked upon as exploitative in character and to curb it, the growth of the public sector was considered as a necessary counter-force.

4.   Organisation of Public Sector Industries

In India, the PSEs, have been organised in three different forms. In the first place, some commercial and industrial enterprises are organised as *departmental undertakings*. Railways and Posts and Telegraphs are important examples of such undertakings. However, very few industrial enterprises have been organised as such. There are industrial units, like the coach factories which are integral parts of ministries such as the railways, P. and T. department of the govt.

Most of the PSEs have been organised either as *Public sector companies*, registered under the Indian Companies Act of 1956, or as Public sector corporations. Majority of the *public sector industrial enterprises* have taken the latter form of organisation. The main feature of this organisation is that for each separate firm a separate Act of the Parliament, defining the scope of activities, mode of organisation and management, objectives etc., is passed. The examples of company form of organisation are: Hindustan Steel Ltd. and Hindustan Antibiotics Ltd. The examples of public sector corporations are: Fertilizer Corporation of India, Heavy Engineering Corporation, Electronics Corporation of India, etc.

Thus, different forms of organisation have been tried out for public sector units. The reason why very few firms have been set up as departmental undertakings is that being components of government such industrial firms would have to work and operate as any public office. The rigidity of rules and regulations and consequent lack of flexibility in their working, and the usual red tapism which marks the operations of government offices are features unsuitable for the organisation of productive activities which require quick decisions and autonomy in decision making. The public corporation form of organisation was adopted for PSEs because, at least in theory, it provides autonomy to the management of these corporations from ministerial and bureaucratic interference, makes the public corporation directly accountable to the Parliament, where their annual accounts and reports are subject to scrutiny and criticism, and enables the Acts governing them to provide for the peculiar features of the working of each enterprise according to its requirements.

The foregoing merits of public corporation form of organisation have in fact remained largely unrealised. Excessive bureaucratization has been the bane of all forms of government organisation. That perhaps accounts for the ultimate failure of the public sector not only in India but the world over, and the consequent triumph of privatisation as has been witnessed since the early 1990s in our country.

Pricing Policy of PSEs

A basic difference between the industrial firms operating within the private and public sectors is the method of setting the prices of their products. You are already aware of the pricing principles followed by the private sector industries. In fact, the theory of value or pricing that you have studied in Microeconomics relates to the firms operating in a private enterprise system. However, the public sector industries would not be operating under the ownership and control of the government if their prices are to be determined on the same principles as in the private sector. The latter runs its business to earn or maximise profits. The same cannot be the objective of a public sector industry. It is operated with the objective of pursuing certain social or political goals. Of course, the PSEs cannot completely ignore profit-making. They must keep their cost of production in view while setting the prices of their products. Over and above their cost of production they inust earn some profit or surplus which could be ploughed back into the public sector so that it keeps on expanding in accordance with the policies laid down in this respect.

In our country, the pricing policy of PSEs has been a contentious issue because it has been marked by a great deal of muddle headedness. The lack of clarify on the part of the government to pursue a consistent and logical price policy for its PSEs, has been one of the criticisms of the public sector in the country and it has been one of the reasons why a need is being felt to privatise the PSEs. So, let us notice what have been the components of the pricing policy pursued in this respect.

The basic premise of the theory of value is that given the profit maximisation objective, each firm will produce the output at which its MR = MC, and that output will be sold at the price which the market will bear (i.e. the price which the buyers in the market will be prepared to pay). Thus, there is an obvious link between the objectives of the fins and the price of its product. Since the public sector firms do not pursue the profit maximisation objective, their

price will not be set according to the above principle. So, what are the objectives laid down for the PSEs in India?

These objectives for PSEs have not been very precisely laid down. But the desirability of the PSEs generating commercial surpluses to finance further economic development has been stated from time to time. Thus, the Third Five Year Plan document spoke of the necessity to ensure that the PSEs "yield an adequate surplus on the basis of which to plan further advance" of the sector. The Fifth Plan emphasised the need to, ensure "a reasonable return" on public sector investments. The Sixth Plan also expressed the desirability of their achieving an adequate rate of return on capital employed. The Bureau of Public Enterprises of Govt. of India in its *Public Enterprises Survey* (1986-87) laid down the principle that the PSEs must "generate a reasonable amount of surplus".

It is amply clear from the foregoing that the need for surpluses being generated by the PSEs has been expressed, but only in general terms. Nobody knows what "adequate" or "reasonable" return meant. These terms were never properly defined. Consequently, therefore, the pricing policy followed for PSEs has been far from consistent or satisfactory. In reality, a multiplicity of pricing principles or procedures were followed for different public sector industries.

Let us discuss some of these procedures followed by public sector industries in India.

(i) Cost-plus pricing principle:- Perhaps in most of the public sector enterprises, this principle of pricing has been followed. Under the principle the enterprise makes an estimate of all the direct and indirect costs incurred on production and marketing and to that is added a certain rate of return on capital invested. So far as the first component is concerned it is based on the sound commercial principle that a firm must so cost its price that all the production and allied costs (such as cost of advertising and marketing) are covered. However, in the case of the rate of return on capital invested, different industries seem to follow a different rule. The govt. has failed to lay down any definite norms in this regard. The question is what is the desirable rate of return on capital invested by the government? In the absence of definite guidelines in this respect, different public sector enterprises have added different rates of return to the costs and some times even the same enterprise has added different rates of return at different time periods. The examples of enterprises following this pricing principle are: coal, electronic goods produced by Bharat Electronics, aircraft produced by Hindustan Aircraft Ltd. etc.

(ii) No-Profit-No-Loss Principle:- This principle is followed in the case of those products produced by the public sector enterprises which are either entirely purchased by other public sector firms or departments of the government or which are essential goods falling under the category of necessaries. As is clear, this principle of pricing would take the cost of production or cost of services as the guiding rule in setting the price. The price charged, would in fact be just equal to the cost of production (including all other relevant costs) so that the producer incurs neither a loss nor makes a profit. The examples of public sector enterprises following these rules are: the Integral Coach Factory which sells all its output to the railways, and Hindustan Antibiotics which produces essential drugs like penicillin.

(iii) Other Pricing Procedures: Besides the above mentioned two fairly well-known pricing procedures, there are others which are being followed due to either the peculiarities of the market in which they are operating or the special characteristics of the industry or enterprise concerned. Take, for example, the public sector enterprises (especially state govt. enterprises) which have to face quite a stiff competition from similar products produced by the private sector. The examples are T.V. sets (like Uptron) or calculators (produced, say by Keltron) which are the products of public sector units, but have to compete with similar goods produced by private sector. Here the prices are determined in the market under the price mechanism. Then, there is the example of Hindustan Shipyard Ltd. which sets the price of ships according to what is called the "U.K. parity" formula. According to it, the prices of ships produced are fixed by negotiation between the firm and the company which had ordered construction of the vessel. During the negotiations, the cost of construction of similar ships in U.K. is constantly kept in view. Finally, we have the example of the Hindustan Machine Tools whose Board of Directors sets the prices of its products keeping in view the cost of production as well as the prevailing price of comparable goods imported into the country.

There are also some public sector enterprises (fertilizers and steel before decentralisation being the examples) where controlled or administered prices are set. These prices are changed when input prices change. Changes are also made when more revenues are to be generated for the general budget.

It would be noted from the foregoing that diverse price-setting procedures are being followed by public sector industries. There is a certain degree of *ad hocism* in the pricing policy of the PSEs. This has come in for a good deal of criticism and has resulted in inefficiencies in this sector in no small measure.

5.   Appraisal of Performance of Public Sector Enterprises

While appraising the role and performance of the public sector industries in India attention is primarily focused on its failures in terms of low profitability. But a more balanced appraisal of this sector should not fail to take notice of the contribution of this sector to in the India's economic development post-independence period. Since we may ignore the role of the public sector in the development of transportation, banking insurance, civil aviation etc. which has been quite considerable, but we mainly confine ourselves to the industrial sector. In this sector too one can safely argue that *the growth and the pattern* of development would have been much different from what it actually has been but for the role of the public sector industries. In the preceding lesson we took note of the substantial structural changes which have occurred in the industrial sector of the country. The basic, capital and intermediate goods industries have dominated the industrial scene in the post-independence period in terms of their growth rate and their share in the total industrial output. Most of these industries were developed within the public sector. Further, we have noted in Table 1 in this lesson that the total capital invested by the central govt. in its industrial enterprises rose from Rs. 29 crores in 1950-51 to Rs. 173870 crores in 1995-96. This is a huge investment by any standard in a matter of just forty years. Had so much investment not been made, the process of capital formation in the country would have been much slower. Besides, the public sector industries helped quite considerably in upgrading technology, learning and importing new skills, and setting standards in labour welfare. Strong inter-sectoral linkages. have been

observed between the public and the private sector industries in India. The growth of the former quite considerably stimulated the development of the latter. Thus, no balanced appraisal of the role and performance of the public sector can justifiably ignore all the foregoing positive contributions of this sector to the Indian economy. But the failures of this sector are also quite glaring. These are discussed below.

(a) Profitability Performance

The criticism of the performance of the PSEs in India has mainly centred on the question of profitability of these enterprises. Although profitability should not be the sole criterion to judge the performance of such enterprises, several of which have enjoyed a monopoly position and which through monopoly profits could well have exploited consumers and workers. Yet generation of enough surpluses by them not only to a degree reflects their working efficiency but also determines their continued growth through the investment of such surpluses.

Two measures of profitability, viz., gross profitability before tax to capital employed and net profit after tax to capital employed and net profit after tax to capital employed, are used in this context. The necessary data in this respect are shown in Table 3 below.

TABLE 3

Profitability Performance of Public Sector Enterprises (%)

S. No.	Year	Gross profit before tax To capital employed	Net profit after tax to capital employed
1.	1970-71	4.0	
2.	1980-81	7.8	(-) 1.1
3.	1990-91	10.9	2.3
4.	1995-96	16.1	6.0

Two things stand out from figures in Table 3. First, whether one takes the one or the other index of profitability shown in the Table, profitability of these enterprises has been pretty low. Net profitability which is a better criterion shows very low profitability. If these enterprises were to borrow funds at the market rate of interest, with net profits after meeting al their: financial obligations like taxes being as low as 6% they would be running into losses. However, a further point which emerges from these figures is that the profitability performance of public sector enterprises has been improving over the years. While the gross profitability ratio has nearly quadrupled in the twenty six years between 1970 and 1996, the net profitability ratio has also turned positive from the negative. Thus, performance of the public sector enterprises in this respect has been improving over the years.

In respect of profitability performance to a careful analysis has so far been missing. Until recently no effort was made to notice how the profitability performance varies between different categories of thèse enterprises. Everybody is agreed on the point that the profiatbility

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performance of some enterprises has been very satisfactory; while that of others was just satisfactory and of still others very poor. But what is the proportion of each of these categories of public sector enterprises. Ruddar Dutt, in his Presidential Address at the 74th Conference of Indian Economic Association (Dec. 1991) tried to put this issue in perspective by showing the proportion of public sector enterprises falling in very high (13 to 23%), medium (6 to 12%) rates of return on capital employed by them. According to this analysis, enterprises accounting for 29.5% of capital employed fell (in 1989-90) in the first category, 64% fell in the second category, and the remaining 6.5% fell under the last category. It is thus obvious that only a very small proportion of such enterprises showed up poor or decimal profitability performance. These were the sick textile units taken over by the government and the fertilizer units in the way category were such enterprises as petroleum, chemicals and pharmaceuticals, engineering units, etc. up the medium category were units producing steel, coal and transport equipment, etc.

Besides, Rudar Dutt also compares the profitability performance of the public enterprises with private sector industries with the help of data enterprises by the Centre for Monitoring Indian Economy with R.B.I. and came to the conclusion that "private sector companies are only a shade better than public sector enterprises" in this respect. Further, he noted that the latter have also to fulfil some social obligations (like balanced regional development, holding the price line, providing service to the society, etc.) which is not the case with the former. Still, all said and done huge amounts of invertible resources have been such into the development of public sector enterprises and by now these should have become completely significant in generating enough surpluses to finance their pressures and future requirements. This has so far not happened.

An important point which needs to be noted is that the account of the public sector enterprises given either to release to the central government enterprises. There are also besides, state govt. enterprises like to electricity boards and the road transportation corporations. These have been left out of discussion for two reasons: one, the data relating to them are rather source, and two, search enterprises are mostly non-industrial in nature. One thing is, however, clear about these enterprises, viz. the huge losses which these have been accumulating over the years. For example, the local losses of state govt. enterprises over the 1985-91 period amounted to Rs. 2648 crore.

(b)   Share in Domestic Savings

The public sector enterprises or rather the whole of the public sector has come in for another criticism, viz. the decline in saving generated by the sector. The three sectors which contribute to total domestic savings are: the household sector, the corporate sector and the public sector. While the share of the first has consistently risen and that of the second reminded constant, the public sector's contribution has declined over the years from 17.2% in 1950 to 7.4% in 1996-97. The criticism does not apply to the public sector industries only, but to the government sector as a whole. However, the fact that these industries have not been making much net profits implies that these do not also contribute anything significant to boost public savings.

6.   PSEs Efficiency and their Special constraints

PSEs have been criticised for lack of efficiency weather on the basis of the profitability criterion or other indices. There is of course no doubt that, as noted above, many PSEs have

yielded very low returns on capital invested in them and used for re-investment in the sector with the view to ensure its continuing growth. Besides, the PSEs Have been criticised for employing more than the needed manpower and for using more capital than justified on techno-economic grounds, etc. They have also attracted criticism for under-utilization of capacity.

However, while evaluating the performance of the PSEs, two facts need to be kept in mind. In the first piece, since the New Economic Policy was adopted in 1991 and consequently a pressure has been created on the enterprises to perform or else they face the prospect of privatisation or even closure if some of them continue to remain sick, the actual performance of most of them has tended to improve. This is clear from the fact that the proportion of the loss-making PSEs has consistently declined during the 1990s. For example, in 1590-91, 48% of all central PSEs were loss-making. By 1995-96, the proportion had declined to 43% still, the proportion of loss-making units is too high to allow the govt to be complacent over the issue. Secondly, the FSEs in India have suffered on account of some special operational and other constraints. Perhaps their greatest constraint has been unnecessary interference of the politicians, ministers and bureaucrats. Their lack of autonomy has resulted in several ills from which they suffer. These include over-staffing and appointments sometimes being made on political considerations, over-centralised administration and consequent delays in decision-making and cost-overruns, lack of freedom to the managers to take decision on the spot, etc.

Because of the socialistic rhetoric of the 1960s and 1970s, the workforce of the PSEs got pampered, thus resulting in frequent agitations, strikes and work stoppages. This has also been one of the causes of some of the PSEs becoming sick units.

As noted earlier, the PSEs have also suffered on account of the absence of a consistent, logical and well thought-out pricing policy. The political class of this country has used the PSEs, which are essentially commercial enterprises, to pursue their political agenda. Thus they could not reconcile the political-social objectives of the public sector with the essentially commercial goals of the PSEs. The result was a muddled pricing policy of these enterprises.

Even when the need for generation of employment opportunities to proceed towards the goal of full employment has been stressed, the PSEs have been progressively pushed into using more and more capital-intensive methods of production. Thus, the choice of techniques of the PSEs has usually been at odds with the employment policy of the govt. Use of capital-intensive methods in the PSEs has been confused with the need for progressive modernisation of this sector. This has also resulted sometimes in over- capitalisation.

Besides the foregoing, two more causes of the poor performance of the PSEs, which belong essentially to the category of the peculiar circumstances in which the units operate, are: the availability of the soft budget option under which their losses are easily absorbed through budgetary allocations and which diminishes their resolve to improve efficiency and the tendency of the managers of these enterprises to become procedure-oriented rather than result-oriented.

It would thus be clear from the foregoing that there are some special constraints under which the PSEs have to operate. These primarily account for their relative inefficiency. And it

is this inefficiency which has become the chief basis of the policy of privatisation now underway in this country.

7.   The Joint Sector in India

A joint sector enterprise is one in which the public and the private sectors collaborate to set up an industrial unit. After the Industrial Policy Resolution of 1956, several such enterprises were set up, the chief examples being the two refineries at Cochin and Madras, and the Madras Fertilizers. The state governments have also floated several joint sector enterprises. Usually, the government retains more than 50% of the ownership rights of these firms, the usual objective of setting up joint sector enterprises is that while all the goals of public sector are fulfilled but at the same time, the business acumen of the private sector industry, which the public sector lacks, also becomes available to the concerned enterprises. The 1950s and the 1960s, was a period when at the policy level there was great concern for curbing concentration of economic power in the country. In 1969 the Industrial Licensing Policy Inquiry Committee had recommended that in order to achieve the afore-mentioned policy objective, all major private sector enterprises should be converted into joint sector firms. This amounted to recommending that there should be social control of even private sector industry. There were some other objectives also of mooting and implementing the concept of joint sector industry. These included: pooling of financial, technical and managerial resources for India's industrialisation from all sources, trying to tone down the drawbacks of public and private sectors and attempting to give trial to a new form of industrial organisation in this country.

The joint sector concept found acceptance of the government in a big way in Industrial Licensing Policy of 1970. The government laid down some guidelines for this purpose, both when the central or when the state government was to collaborate with private sector parties for setting up joint ventures.

It may, however, be noted that the concept of joint sector has failed to be implemented on a large scale. Its relative position vis-a-vis the public and private sector industries has tended to remain rather insignificant. According to the data compiled by the Centre for Monitoring Indian Economy (CMIE), in 1989-90, the joint sector industries accounted for merely 7.7% of productive capital, 9.1% of value added and 6.7% of employment in the entire corporate sector of the country.

Although so far the joint sector concept has failed to take off in a big way, yet it can be hoped that in the 1990s when the wind of privatisation is sweeping across our country the public and the private sectors can collaborate in industrial development of the country on a much bigger scale. In fact, some of the public sector enterprises, for which there is no justification to be within that sector, can be turned over to the joint sector. That would be a meaningful way of pooling resources existing within the public and the private sectors.

Exercise

1.   Discuss the rationale for expanding role of public sector.

2.   Examine the PSEs efficiency and their special constraints.

8.   Summary

In this unit, we have discussed the growth of the public sector industry in India. During the 1950-96 period, both the number of Public Sector Enterprises (PSEs) and the capital employed in them multiplied several times. The public sector in India has grown rapidly. The rationale for expanding the role of public sector was high investment requirement during the initial stages of industrialisation, low profitability, high risk and uncertainty because of which the private sector could not be expected to utilize all the necessary resources for them. The public sector had, therefore, to come forwards to make investments and bear the initial risk. Finally, the development of public sector becomes necessary to speed up the process of industrialisation to attain certain socio-economic goods, and to exercise more control on the productive apparatus of the economy. However, it would be clear from the foregoing discussion that there are some special constraints under which the PSEs have to operate. These primarily account for their relative efficiency which has become the chief basis of the policy of privatization now underway in this country.

9.   Glossary

- **Cost plus pricing:** Cost plus pricing is a strategy that typically includes a mark-up on the cost of products and services to determine a selling price.

- **Departmental Undertaking:** Departmental Undertakings can be defined as most common and established forms of public enterprises. Departmental Undertakings are financed and managed by government. Indian Railway is an example of Departmental Undertaking.

- **Globalization:** Globalization refers to the process of increasing openness, growing economic interdependence and deepening economic integration in the world economy.

- **Industrial Policy:** Industrial Policy is defined as the strategic effort by the state to encourage the development and growth of a sector of the economy.

- **Joint Sector Enterprises:** Joint Sector Enterprises is an industry and business which is owned, controlled and managed jointly by private enterprises and the government.

- **Liberalization:** Liberalization is described as the relaxation of government regulations and constraints on local trade and commerce.

- **Privatization:** Privatization is the process of transferring ownership, management and control of public sector companies by govt. to private entities.

- **Public Sector Enterprises (PSEs):** PSEs are business owned and controlled by the government.

10.   Answers to Self Check Exercise

Answer to Q1. Refer to section 3.

Answer to Q2. Refer to Section 6.

11. References/Suggested Readings

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12. Terminal Questions

Q1.   Examine the role of Public Sector in India's Industrial Development.

Q2.   What are the different kinds of organisations that comes under public sector? Also discuss the pricing policies followed by Public Sector Enterprises in India.

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LESSON-19

PROBLEMS OF INDIAN INDUSTRY - I

STRUCTURE

1.   Introduction

2.   Learning Objectives

3.   Industrial Sickness in India

4.   Capacity utilization of Indian Industry

5.   Foreign collaboration of India Industry

6.   Summary

7.   Glossary

8.   Answers to Self Check Exercises

9.   References/Suggested Readings

10. Terminal Questions

1.   Introduction

We shall round off the discussion of this course with the examination of a few major problems afflicting Indian industry in this and the next lesson. By now you have become familiar with the fact that the post-independence period in our country has been matter of marked by a major thrust in the industrialisation, both in terms of the accelerated growth rate of industry as well as its diversification. However, as we have proceeded on this path, it was natural that some problems would arise which have been the focus of planning and policy measures undertaken by the government. It is necessary, therefore, to highlight these problems here, notice how serious these have been and how the policy-makers have tried to deal with them. In the present lesson we shall deal with three problems of Indian industry, viz. the problem of industrial sickness, capacity utilization and the question of foreign collaborations. We take up these issues one by one below.

2.   Learning Objectives

Upon completion of this lesson, you will be able to:

* Understand Industrial Sickness in India.

* Evaluate Capacity Utilization in Indian Industry

* Understand Foreign Collaboration of Indian Industry.

3.   Industrial Sickness in India

As new industrial enterprises are set up and the old ones try to cope with the problems generated by a dynamic economy, some of them fall sick. Industrial sickness is a problem which causes anxieties to at least four parties, viz. the entrepreneur, the workers who may be under threat of losing their jobs, the finances, and finally , the government which, being the guardian of national interests, has to find solutions for such problems.

We have to, first of all, notice here how precisely industrial sickness is defined in India, and then to observe the extent of the problem in the country.

R.B.I. in its Report on Trends and Progress of Banking in India (1977-78) had laid down two indices of industrial sickness which could be used by the banking sector while financing industrial units. You will notice that this is an important issue for banks because if the industrial units financed by banks fall sick, the latter find their funds locked up in firms which may never be able to repay them. Thus, the two criteria of industrial sickness laid down by the R.B.I. are: (i) when an industrial unit has incurred cash losses for one year, and the financing bank fees that in the current and the following year as well it will incur such losses, and (ii) there is an imbalance in the financial structure of the unit in the form of ratio of current assets to current liabilities being less than one. Besides, the Sick Industrial Companies (Special Provisions) Act, 1985, had defined a sick unit as one which has been registered as a company for not less than seven years and which has at the end of any financial year accumulated losses equal to or exceeding its entire net worth i.e. its paid up capital and reserves and has also suffered cash losses in such financial year and the preceding year.

The industrial units which display features such as the foregoing also exhibit symptoms of sickness like the following failure to pay statutory liabilities, e.g. provident fund and E.S.I (employees state insurance) contributions, failure to repay public deposits, accumulation of inventories, low capacity utilisation, frequent industrial disputes , and so on and so forth.

Applying its own criteria, the R.B.I., in its Report of Currency and Finance for different years provides the estimates of the extent of industrial sickness in the country. Some of these data for the years 1980 and 1995 are given in Table 1 ahead:

The figures in table 1 above bring out some salient features of the extent of industrial sickness in the country. First, it would be noted that in the fifteen years between 1980 and 1995, the number of sick industrial units, especially those belonging to the SSI sub-sector, has risen sharply. It is estimated that out of the total small scale Industrial units in 1994-95, nearly one-tenth were sick. Secondly, a total of Rs. 12,287 crore of bank credit was locked up in these sick units in March, 1995, out of which a major share was accounted for by large and medium scale units. The bank credit so lock up has grown quite rapidly in the 1980-95 period. Thirdly, the average outstanding bank to credit per sick unit in the non-SSI industrial units was very high in March 1995. It was as high as Rs. 4.6 crores per sick unit. In this segment of industry the outstanding credit per sick unit more that occupied in the 1980-95 period, through interestingly, it remained constant in the case of sick SSI units.

TABLE 1

Extent of Industrial Sickness in India

S. No.	Year and Nature of information	Large and medium scale units	Small scale units
1.	No. of sick units:		
	Dec. 1980	1,401	23,419
	March 1995	1,915	2,68,815
2.	Outstanding bank credit (Rs. crore):		
	Dec. 1980	1,520	306
	March 1995	8,740	3,547
3.	Average outstanding bank credit per sick unit (Rs. lakh)		
	Dec. 1980	108.5	1.32
	March 1995	460.0	1.32

Over-all, therefore, it is clear from the foregoing that the phenomenon of industrial sickness has been growing in India, especially in the small scale sector. But in the matter of turning bank credit into the locked up bad debt, the large and medium scale sick industrial units are greater culprits.

The R.B.I. *Report on Currency and Finance* (1995-96), brings out the additional fact in this respect that from amongst the different industries of the country, the largest number of sick units are in the textiles industry. The engineering industry is not far behind in this regard. The two together accounted for nearly one-third (32.2%) of the total sick units in March, 1995. From amongst the States, West Bengal accounted for the largest number of sick units, closely followed by U.P. These two together had nearly one-third of the total industrial sick units of the country.

If industrial sickness is so widespread, especially in the SSI sector, where a fairly high proportion industrial units have fallen sick, it is natural to ask what are the causes of *industrial sickness* in the country. The following factors may be particularly mentioned in this connection:

(a) The Internal factors:- The internal factors are those in which the industrial unit itself invites its loom through its faulty or injudicious policies. The Planning Commission called it "the incompetence or the cupidity of the management". The most obvious case is where the owners of the firm try to milk the industrial unit dry of its resources by declaring very high rates of dividend which result in complete lack of internal resources even for carrying out renewals and repairs of machinery and other capital equipment. Besides such "cupidity", rank

incompetence on the part of the management may be another factor responsible for the sickness of a unit. Yet another internal factor may be the deliberate policy of the decision-makers of the unit to get whatever benefits it can from the govt. in the form of subsidies and cheap credit and then declare the unit sick. A further internal factor may be the lack of proper planning, inadequate estimation of demand conditions or the degree of competition. A wrong choice of location of the industrial unit can also cause sickness. Finally, a firm may fall sick because its production schedule is frequently disrupted by poor industrial relations, that is strikes and lock-outs.

(b) The External factors:- Sometimes while the industrial unit is downfall may be caused by factors completely outside its control. Faulty govt. policies are usually mentioned in this connection. For example, under the Industries (Development and Regulation) Act, 1951, there were several products which were subject to fixation of controlled prices by the govt. Many a time, the controlled price may be so low, or it may not be revised upwards when costs rise, that the units producing those goods may be forced to incur losses and finally fall sick. The example of course cloth and coal in the pre-nationalisation example of external factors causing industrial sickness is again connected with faulty policy of the govt. It is pointed out that the public sector as a whole and its banking sector and public sector corporations have, under pressure from the employees unions, offered relatively high wages and perquisites to their workers while demanding a raise in their wage rates and other amenities. There is of course no doubt that the government's wage and income policy has been highly irrational. Even within the public sector, the wage rates and other perquisites differ from one segment to the other, causing heartburns and tension within the working class. The private sector does not remain unaffected. High wages and other amenities provided under pressure sometimes lead to losses in those units which are already financially weak.

Any discussion of the causes of industrial-sickness in India unfortunately suffers from the drawback that there is a complete lack of data on this aspect of industrial sickness. Microlevel studies are of course there to show why a particular unit or a group of units has fallen sick, but no study has been conducted to find out why so many industrial units have fallen sick, and among the factors usually cited as causes which is more important and which less.

The govt. has taken some steps to deal with the problem of industrial sickness. The measure adopted in this respect include passing of Sick Industrial Companies (Special Provisions) Act in 1985 to facilitate early detection of industrial sickness and to evolve a package of revival and rehabilitation measures; establishment of the Board for Industrial and Financial Reconstruction (BIFR) with powers to investigate whether an industrial unit has fallen sick, to determine causes of its sickness, and recommend it for a revival package or closure: and setting up of Textile Modernisation Fund and Jute modernisation fund to provide funds for modernisation in the concerned industries. However, it would be seen that though the phenomenon of industrial sickness is quite rampant in the country, the government has not taken commensurate steps to deal with it.

4.   Capacity Utilisation in Indian Industry:

The second problem of Indian industry that we up for discussion here is that relating to capacity utilisation. It is well-known that the usual link between investment and income

(output) is provided by production capacity. Investment results in the creation of production capacity, but the resultant increase in income and output depends on the rate of capacity utilisation.

The study of capacity utilisation and under-utilisation in Indian industry is, however, constrained by two problems. One is that the official data on production capacity in different industries is based on single-shift basis. A single-shift of workers works on machines for nearly eight hours a day. If, however, a factory operates on a double-shift basis, the same machines would be more intensively used and their production capacity would be 100% more. Secondly, the firms either understate or overstate their installed capacities to the govt. agencies, depend upon which will be more helpful to them in getting various incentives or benefits from these agencies.

In any study of the rate of capacity utilisation (i.e. whether the plant and machinery are utilised at full capacity or they are underutilized) it is of crucial importance to know the number of shifts at which plant and machinery are operated.

The importance of the study of capacity utilisation becomes at once clear if it is remembered that a higher rate of capacity utilisation means (i) more production, (ii) greater employment of labour, and (iii) a better use of the capital stock of the country.

Let us look at some of the estimates of capacity utilisation of Indian industries. Such estimates are available in R.B.I., Centre for Monitoring Indian Economy (CMIE), World Bank and UNIDO publications. Some of these estimates, given by broad categories of industries are shown in the form of time series in Table 2 ahead.

It may be noted in Table 2 that the capacity utilisation ratios (the ratio of actual utilisation to the optimum production capacity as a percentage) were fairly high, exceeding 80% in all groups of industries at the beginning of this period. And there was very little spread in these ratios as between different groups of industries. However, the situations changed thereafter. In the 1971-75 period, which was incidentally a period of industrial stagnation, the capacity utilisation ratios were lower in all groups of industries. The fall was most pronounced in capital goods industries, followed by basic goods, intermediate goods and the consumer goods industries. In 1980, the position remained broadly the same in basic and consumer goods groups while it improved slightly in the other two groups. As compared to the 1960-65 position, the average position in the entire 1970-83 period was worse, especially in the capital and basic goods sub-sectors. It is easy to infer from this statistical account that the best period from the point of view of industrial capacity utilisation in India was the period of early 1960s. Thereafter, although a great deal has happened on the industrial scene of the country yet our utilisation of industrial capacity remained far below the optimum. This has resulted in high capital-output ratios (or low output per unit of capital employed) and consequent rise in as well as low productivity. production costs Unfortunately, capacity utilisation data for 1990s are not available. However, it is certain that since industrial slow down started after 1996, the rate of capacity utilisation in most of the industries must have been fairly low both during 1997 and 1998.

TABLE 2

Capacity Utilisation Ratio in Indian Industry (%)

S. No.	Industry Group	1960-65	1971-75	1980	Average between 1970-83
1.	Basic goods	86.0	77.4	77.2	76.5
2.	Capital goods	85.9	60.2	62.4	57.8
3.	Intermediate goods	89.3	79.7	82.5	84.3
4.	Consumer goods	86.6	80.1	80.1	85.7

Source: For 1960-80 period: I.J. Ahluwalia. *Industrial Growth in India* Table 5.19. For 1970-83 period: P.V. Srinivasan, EPW, Nov. 7,1992.

For the mid-1980s , the position in this respect was summed up by the CMIE in its publication entitled *Production and Capacity Utilisation in 600 Industries* (1987) that in 1986, 35% of industries operated below a capacity utilisation rate of 60%. This is a rather unsatisfactory situation.

The public sector enterprises are sometimes criticised for their inefficiency, one of the indices of which is the low rate of capacity utilisation, interestingly, B. Goldar and V.S. Ranganathan (article In *The Indian Economic Journal*, Oct. Dec. 1991) compared the rate of capacity utilisation of some of those industries where both sectors operate. According to the comparative figures provided by them for the year 1983-84 out of the 11 industries considered, while the rate of capacity utilisation was higher in 6 private sector units it was higher in the other 5 public sector units. Thus, in terms of rate of capacity utilisation, there was hardly any difference between the efficiency of the private sector vis-a-vis the public sector.

Next, let us consider some of the causes of low rate of capacity utilisation in Indian industries. The causes usually fall into two categories, viz., demand-side factors or demand constraints, and supply-side factors or supply constraints. There is also a third category of factors which neither falls on the demand side nor the supply side. This is the category of the industrial and policy environment in which the firms have to operate.

The demand constraints, are clear enough. An industrial unit may not be able to make optimal use of its available productive capacity and may, therefore, suffer from idle or excess production capacity because there is a lack of sufficient demand for its products. P.V. Srinivasan found from his analysis that capacity utilisation was low especially in basic and capital goods sub-sectors because of the operation of the above-mentioned demand constraint. This, according to him, meant that investment in these industries was planned without taking adequate notice of the demand trends.

The supply constraints include some of the well-known factors such as lack of availability of raw materials and inputs, infrastructural bottlenecks, such as power shortage, inadequacy of transportation facilities, and other supply-side factors, such as disruption of production process due to frequent strikes or lock-outs.

While the above-mentioned supply and demand constraints are important in causing low rates of capacity utilisation, it is being increasingly recognised that the environment in which the industrial units operate may be a significant determinant of this phenomenon. The environment in this context comprises of two factors, viz. the structure of industry within which firm operates, and the nature of environment which is created for the firms by govt. policy. The last-mentioned among them was considered really important in the context of capacity utilisation of Indian industries by Jagdish Bhagwati and T.N. Srinivasan in their book entitled Foreign Trade Regimes and Economic Development: India (1975).

B. Goldar and V.S. Renganathan (articles in the Indian Economic Journal, Oct-Dec., 1991) carried out an econometric study by using the multiple regression technique to find out the significance of structure of industry and govt. policy in determination of capacity utilisation by industries. Using the degree of industrial concentration as the index of industrial structure, they come to the conclusion that the more concentrated industries show better capacity utilisation. According to them, "Restrictions on entry of new firms help existing firms to attain a higher level of capacity utilisation and thereby a more efficient use of capital input. "They also find that capacity utilisation is better in industries subject to industrial licensing and industries reserved for the public sector. Thus, Goldar and Ranganathan find govt. policy to be a positive factor in capacity utilisation. However, Bhagwati and Srinivasan in their above-mentioned book had argued that some of the govt. policies like industrial and trade policies, such as import licensing, had resulted in low capacity utilisation because of creation of excess production capacity. In as much as the new industrial policy (1991) removes the shackles of industrial licensing and import restrictions and has helped in promoting a more symbiotic govt.-industry relationship, the new policy should help in improving capacity utilisation.

5.   Foreign Collaboration of Indian Industry

The last issue to be discussed in this lesson is the foreign collaboration of Indian industries. Foreign collaborations are defined as joint participation of Indian and foreign companies for the production of a particular good. The examples are Maruti-Suzuki, BPL-Sanyo and Swaraj-Mazda. The objective of foreign collaborations is usually threefold one, to acquire technical know-how from the foreign participating company; two to get foreign exchange from the foreign company through its equity participation in the ownership of share capital of the Indian partner company: and three, to make use of their better expertise in management, marketing, use of information technology and usually their demand for Indian products existing in several of their subsidiaries operating in different countries.

In the immediate post-independence years, the general sentiment in the country was against anything foreign since these smacked of being the products of colonialism. This was particularly the case with Indian leaders and policy makers. A general policy of making India a self-reliant economy was pursued, to begin with in the 1950s and the 1960s. Even on the supply side. The foreign investors, for fear of their enterprises being nationalised, tried to keep out of India and other underdeveloped countries. Many foreign enterprises set up during the British period of course continued operating in the country. Their position, as well as that of any new entrants into the country, came to be subsequently regulated under the Foreign Exchange Revolutions Act (FERA); 1973. Under the Act, foreign companies were compelled

to reduce their equity participation (i.e. proportion of their ownership rights in companies) and to increasingly Indianise ownership control and management. Thus, in certain cases, foreign companies could set up enterprises in India, or those which were already operating here could continue operations, but subject to the provisions of the FERA. According to the original provisions of more than 40% i.e. owning more than 40% of share capital had to seek permission of the R.B.I. to do business in this country. The principal rule was that foreign companies had to convert themselves as Indian companies, with at least 60% as local equity participation.

Thus, the objective of the original FERA was that the foreign companies, both already operating in India, and those that intended to enter this country for the first time, had to, Indianise themselves and, therefore, collaboration between foreign and Indian companies was preferred. In the actual operation of the FERA as well as through several subsequent amendments in the original Act, the control over foreign companies has never been as stringent as was envisaged during the early 1970s. The policy in this regard was completely reversed in the new industrial policy of 1991 and several further relaxations to foreign companies that are set up in India have been made ven after that. In any case, foreign collaboration (i.e. joint ventures between Indian and foreign companies) have been a part of the Indian industrial scene inspite of the hostility of the govemment towards foreign enterprises in the 1950-80 period. This hostility took at times exterme forms. For example, during the Janata Party regime in 1977-78. Coca Cola and IBM, the two American giants were forced to close down business in this country.

Collaboration between Indian and foreign companies have, however, always been encouraged. The foreign collaborations have usually been of two types, the purely technical collaborations, and foreign collaborations with foreign equity participation. Under the former, an Indian firm enters into a collaboration with a foreign company for the supply of technical equipment and skills, etc. for which the foreign equity receives a royalty or fee, etc. Under equity participation, he Indian and Foreign companies set up a joint venture.

The trends with regard to foreign contributions in this country, in the post-independence period is shown in Table 3 below.

TABLE 3

Number and Nature of Foreign Collaborative Approved

1948-98

Period	Purely technical Collaboration	Collaborations with foreign equity participation	Total Collaboration approved
Average for:			
1948-60	-	-	83
1961-70	168	80	248

1971-80	282	42	324
1081-90	560	184	744
1991-98	769	1119	1888

* Upto May, 1998.

As has been noted earlier, the earlier period after attainment of independence was not propitious for entering into collaborations with foreign companies. It was by and large a period of what is these days called *Swadeshi*. However, soon it came to be realised that the world economic system was being propelled by modern technology which was being developed at a fast pace in the developed countries. Technology was being primarily generated by multinational corporations (MNCs) through R and D for which they had ample resources. Countries like India lacked the resources for R and D, therefore, could not develop technologies on their own and at a fast enough pace. So foreign collaborations were necessary for using technologies developed abroad as well as the other benefits like foreign capital, marketing techniques, improved management, etc. which such collaborations were expected to bring in with them.

We notice in table 3 above that the average number of foreign collaborations approved per year has continued rising over this period. There has been a spurt in these approvals, especially since the early 1980s. That is for the reason that; as noted earlier, the govt. policy was almost hostile to such arrangements in the pre-1980 period. Since 1991, the policy of economic liberalisation has increasingly encouraged foreign collaborations. In the 1991-98 period, a total number of 13224 foreign collaborations were approved out of which 5385 (40.7%) involved technical collaboration.

Out of all the technical collaborations in the 1991-98 period, nearly 64% are accounted for by the industrial machinery sub-sector, followed by metallurgical industries, drugs and pharmaceutical, automobiles etc. As expected, the highest proportions of the technical approvals (21.2%) are with U.S. firms followed by German and Japanese firms.

There is no doubt that foreign collaborations, especially technical collaboration, have helped the economy of the country in vital ways. In several industries, these have perceptibly helped in the up gradation in technology. In the automobiles and the electronics good sectors, among others, there has been has been a visible improvement in the quality of products produced by the joint ventures of Indian and foreign firms.

However, the foreign collaborations have also come in for criticism. Firstly, it is argued that the relaxation of firms on foreign collaborations has correspondingly reduced our attempt to attain technology, a self-reliance. It is noted that when a superior Indian technology is available, both public and private sector units ignore it and they prefer to enter collaboration agreements with foreign firms for technical know-how. Secondly, it is noted that the foreign collaborations bring in very little foreign capital. Thirdly, it is pointed out that the foreign collaborations have merely helped the country import out-dated and inappropriate technology. Fourthly, the foreign capital-goods, particularly from the foreign partners. This adds to the import bill of the country thereby contributing to the deterioration of the balance of payments position. Finally, it is argued, by citing appropriate data in support, that foreign technology

under the foreign collaboration is purchased at very high prices and the foreign collaboration takes away more foreign exchange in the form of fees commissions and its share of dividends than it adds to the foreign exchange earnings of the country, either through equity participation or export earning of the joint ventures. Of course, most of these criticisms of foreign collaborations are of contentious nature and it is difficult to say how useful or harmful such collaborations are for the over-all economy of the country.

Exercise

Q1.   Define Industrial Sickness.

Q2.   Discuss the causes of industrial sickness in Indian Industry.

6. Summary

In this unit, we have discussed a few major problems afflicting Indian industry. As per the definition the Reserve Bank of India, a sick unit in one such industrial unit that has been in loss for the past year of operations and has been declared on a loss for the present and coming year as well by the financing bank. Some major factors that cause industrial sickness are categorized into two categories i.e., internal factors and external factors. Internal factors that cause industrial sickness are incompetence and cupidity of management, lack of proper planning, inadequate estimation of demand conditions on the degree of competition, and choice of wrong location etc. The external factors include government policies, price control etc. However, the government has taken some steps to deal with the problems of industrial sickness. The measures adopted in this respect include the passing of Sick Industrial Companies (Special Provisions) Act in 1985 and the establishment of the Board of Industrial and Financial Reconstruction (BIFR) etc. The public sector enterprises are sometimes criticized for their inefficiency which causes a low rate of capacity utilization. There causes of low rate of capacity utilization fall into three categories i.e., demand side factors on demand constraints, supply side factors or supply constraints, and the industrial and policy environment in which the firms have to operate. However, foreign collaborations have also come under criticism. It is very difficult to say how useful or has useful such collaborations are for the overall economy of the country.

7.   Glossary

- **Capital Utilization:** Capital Utilization refers to the manufacturing and production capabilities that are being utilized by a nation or enterprise at any given time.
- **Demand Constraint:** Demand constraint refers to a situation when an industrial unit suffer from idle or excess production because of lack of sufficient demand for its product.
- **Industrial Sickness:** Industrial Sickness refers to a situation when an industrial firm performs poorly, incurs losses for several years and often defaults in its debt repayment obligations.
- **Supply constraints:** Supply constraints includes some well-known factors from supply side such as lack of availability of raw materials and inputs, infrastructure bottlenecks and other supply side factors.

8.   Answers to Self Check Exercise

Answer to Q1. Refer to section 3.

Answer to Q2. Refer to Section 3.

9.   References/Suggested Readings

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10.   Terminal Questions

Q1.   Define Industrial Sickness. What are the causes of Industrial Sickness in Indian Industry?

Q2.   Discuss the problem of capacity utilization in Indian Industry.

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LESSON-20

PROBLEMS OF INDIAN INDUSTRY - II

STRUCTURE

1. Introduction

2. Learning Objectives

3. MNCs in India

4. Indian Industrial Investment Abroad

5. Liberalisation of Industrial Controls in India

    5.1.   Liberalisation of Licensing Policy

    5.2.   Liberalisation of Regulatory Measures under Industrial Policy

6. Large Versus Small Scale Industries in India

7. Summary

8. Glossary

9. Answers to Self Check Exercises

10. References/Suggested Readings

11. Terminal Questions

1.   Introduction

In this last lesson on this course, we shall discuss the remaining issues and problems of Indian industry. These include: multinational corporations (MNCs) in India. Indian investments abroad, policy of liberalisation vis-a-vis Indian industry and small scale versus large scale industry in the country. We shall take up these topics one by one below.

2.   Learning Objectives

Upon completion of this lesson, you will be able to :

- understand the concept of multinational corporations in India.

- understand Liberalisation of Industrial control in India

- understand Large vs. small scale Industry Debate in India.

3.   MNCs in India

Multinational or transnational corporations, as their name implies are giant companies registered in a particular country but having their operations in several countries. Some of the

MNCs with the names of which you are also familiar are: Nestle India Ltd, Hindustan Levers. Colgate Palmolive India Ltd. etc. The MNCs operate in India in two forms: as foreign branch companies, where a firm is merely a branch of an MNC incorporated (i.e. registered) in a foreign country, and as what has come to be called a foreign-controlled rupee company (FCRC) where the company is registered in India but its more than 50% share capital is owned by foreign based companies or persons. The MNCs in these forms are different from the foreign collaborations which we discussed in the preceding lesson. The latter is as joint venture between an Indian and a foreign is either wholly owned by the foreign company i.e. It is a subsidiary of an MNC or the majority interest is held by the foreign company. Under the FERA, when the MNCs were asked by Govt. of India to dilute ownership of their companies in this country (i.e. to increasingly transfer ownership to Indians), a way was devised by the MNC, to retain their ownership of the companies floated by them. They registered these companies in India with capital floated in the Indian capital market. Since the share of such companies were primarily held by the MNCs, these companies came to be called as foreign-controlled rupee companies.

Even before the new economic policy adopted in 1991, there were a large number of MNCs operating in India. Its March, 1990, there were as many as 469 foreign companies in this country. It must be kept in mind that these foreign companies or MNCs are in addition to the joint ventures under foreign collaborations, where some foreign companies have equity participation in Indian companies.

The New industrial policy of 1991 opened up the floodgates of foreign enterprises into this country. The foreign companies or MNCs can freely come into the country. There companies and corporations are referred to as Overseas Corporate Bodies (OCBs) or government documents. The OCBs majority of which are MNCs have since 1991 been granted greater and easier access to the Indian Market. In 1991 the foreign companies were granted automatic approved by the R.B.I for equity participation of up to 51%. Since then the foreign equity participation, qualifying for automatic approved has been raised first up to 74% and now to 100%. The only requirement is that one investment should be made in priority industries designated as such by the government.

During 1997, the government approved 660 foreign technology agreements and 1665 foreign direct investment (FDI) proposals of the Overseas Corporate Bodies. Most of which are MNCs. The respective Figures for 1991 were 661 and 289. The actual amount of FDI RECEIVED BY India rose from Rs. 352 crore in 1991 to Rs, 12036 crore in 1997. This is a measure of the increasing role of MNCs in the country. This is besides the expansion in the operations of the already entrenched MNCs that has been taking place in the country.

Which are the countries of origin of the MNCs operating in India? In 1978-79, the highest proportion, i.e. 57% were from U.K., 17% (the next highest) were from U.S.A. and the remaining 28% were from countries like W Germany, Sweden, Canada, Japan France, etc. Thus, perhaps because of historical reason, more than half of MNCs operating in India were of British origin. In the last two decades, however, the position has changed. In the 1991-95 period, of the total foreign investment proposals approved, 29% came from the U.S.A. 7.8% from Israel, 7.1% from Britain, and 5.3% from Japan. Now private capital is coming even from countries like Malaysia and Mauritius. In this country the attitude has varied from open hostility towards them in the 1950s, and the 1960s to invitation with open arms as under the

Industrial Policy 1991. In the immediate post-Independence period, Indians were not kindly disposed towards anything which smacked of foreign domination including the MNCs. In fact several of the foreign companies operating in India since the pre-independence days were nationalised during this period. One can cite the example of American oil companies Esso and Caltex. The MNCs themselves were rather wary of setting up their branches in India. However, like other LDSs, India bas throughout the period since independence has been plagued by the twin problems of shortage of foreign capital and foreign technology. The MNCs have been for long considered as the chief sources of both foreign capital as well as latest technology. Therefore, the attitude towards MNCs has gradually softened, especially at the government level. This change in attitude has culminated in the open arms policy towards the MNCs in the Industrial Policy of 1991.

What are the benefits and costs of allowing MNCs to operate within the country? Not only in India, but the world over there has been an intense debate on the merits and drawbacks of the working of the MNCs in their boost countries. In India, there is no doubt that much of the technology transfer to the public and the private sector firms has taken place through the agency of the MNCs. Such technology, Embodied in Indian products, is not only visible in such products of day to day use as cold drinks, tooth paste and T.V. sets, but also in such high grade products as car, light commercial vehicles and computers. Questions have, however, been raised regarding the cost of such technology transfer, both in terms of foreign exchange as well as the social cost to the society. Besides, some *other drawbacks of our dependence on the MNCs* have been pointed out, which are briefly discussed below.

(1)   It is pointed out that allowing free operation of MNC's in India has been detrimental to our quest for indigenous technology which started during the Nehru era, with the establishment of a chain of National and research institutes. Laboratories Permitting the MNCs a free run in this country has not only resulted in a retreat from attaining a measure of self-sufficiency in this respect but also in the import of inappropriate capital and skill-intensive technology in a labour surplus economy.

(2)   It has been shown by many researchers that MNCs have a preference, for high profitability areas of investment which may not necessarily be socially the most desirable forms of investment. High profits, along with other fees, commissions etc. earned by them for performing different jobs, are seen as a form of exploitation of the country. A study has shown that during the 1991 to 1996 period, the sales turnover of 100 top MNCs in India has risen by 91% their profits before tax had risen by as much as 135%. This is seen as the index of excessive profitability of the operations of these corporations in the country.

(3)   The MNCs have also been accused of bringing into the country too little capital, of transferring obsolete technology, and showing a marked preference for producing those goods which are of low social utility.

(4)   The main criticism against the MNCs in the post-liberalisation period has been that they pose a serious danger to our indigenous industry. It is alleged that the MNCs have more resources at their command so that through intense advertisement and other sales promotion measures, they swamp the Indian market and thus the local industry is competed out. It is in this context that the Indian entrepreneur have been

asking for what they call "the level playing field". By this they mean that the competition between themselves and MNCs is unfair in so far as the two are unequal rivals in the market Indian entrepreneurs, therefore, expect some concessions from the govt. so that they can compete with the economically and technologically stronger MNCs. It is precisely in the contest that the slogan of *Swadeshi* is sometimes raised by some political parties.

In the context of the foregoing drawbacks of the MNCs, two points need to be kept in mind. In the first place, the criticism is sometimes misplaced and based on selective use of data and sentimental considerations. For example, MNCs have not necessarily chosen those fields of investment which are of low national priority. Data on foreign direct investment (FDI) approved in the 1991 to 1996 period show that of the total approvals, 77% belong to the priority sector and only 23% fall under the category of non-priority investments. It must, however, be conceded that all this FDI is not necessarily on account of the entry of MNCs alone. Secondly, the debate on has been on ideological lines. Those who attack the policy of liberalisation in the matter of allowing MNCs into the country hold certain well-recognised political views. Therefore, the debate on the question is not merely on the basis of the merits or demerits of the case.

It must be kept in mind that the American, European and Japanese MNCs have been operating nearly the world over (that is why they are called multi-national), and if they had been only harmful to the local interests, they would not be permitted to come in by so many countries. What are, therefore, the main merits of the MNCs.

Several benefits of the MNCs for their host countries are claimed. These briefly are: the foreign capital brought in by them makes up the deficiency of domestic savings; they are the main sources of latest technology: their methods of marketing, management. human resource development, etc. are an objective lesson for a country like India; they help in breaking up the monopoly of domestic producers: sometimes create demand for local products (like the foreign automobile manufacturers which have set up business in India, buy the auto-parts from Indian firms): their foreign branches sometimes create demand for Indian goods and thus help in raising exports and so on.

4.   Indian Industrial Investments Abroad

Now, we next consider the reverse process of what has been called FDI and entry of MNCs-into India. Just as foreign entrepreneurs are coming in India to set up their enterprises, do we observe Indian industrialists also setting up their business abroad? The answer is in the affirmative, although the phenomenon of Indian industrial investments abroad or the Indian MNCs coming into being, is yet to take a sizeable shape. Indian investments abroad have taken two forms, viz. Indian joint ventures with foreign companies in the latter's own countries, and wholly owned subsidiaries set up abroad by Indian companies.

The figures that are available for the early 1990s show that Indian entrepreneurs had just about begun to move in this direction. Thus, by the end of 1991, there were 245 Indian joint ventures in 43 countries of the world. Out of these, 161 with an equity participation of Rs. 121 crore were already in operation, while the remaining 84 wee in different stages of implementation. These joint ventures had brought into the country dividend and other incomes to the tune of Rs. 452 crores.

On the other hand, 66 wholly owned subsidiaries of Indian companies had been set up abroad by the end of 1991. But these Indian subsidiaries had by then entailed a meagre equity investment of a mere Rs. 74 crores. These Indian subsidiaries had been set up in U.K. (13), the U.S.A. (11), Singapore (4), and Germany, Switzerland as well as Hong Kong.

In the wake of liberalisation of economic policy the govt. had issued guidelines regarding Indian investments abroad in Oct. 1992. According to these guidelines, an application for direct investment in a foreign concern is to be automatically cleared within 30 days of its receipt. The value of proposed investment should not exceed $2 million. Applications involving higher investment go to an inter-ministerial committee for consideration.

Now MNCs are originating from even the relatively less development economies like South Korea and Taiwan. Indian industrial majors like the Birlas, Tatas and others too would have emerged by now as MNCs but perhaps for the negative policy of subjecting the private sector industry to a regime of strict countries the MNCs have been carefully nursed and nurtured by their respective governments. There has been a strong tradition of govt. private sector industry co-operation in countries like Japan, South Korea and in the West. Whenever the govt. of a country finds that the interests of a MNC which has originated from there are in jeopardy due to govt. policies abroad, the govt. immediately intercede on behalf of the MNC with the concerned country abroad. In India, the opposite has been the case in the govt. Private sector industry relations. It is only since the early 1991 that the govt. policy in this respect has taken a positive turn. So we now turn to the consideration of liberalisation of industrial controls in general in India in the following sector.

5.   Liberalisation of Industrial Controls in India

In the matter of control over private sector industry, India at the time of independence inherited a system almost of laissez-faire. Under the system, Private sector industry enjoyed a large measure of autonomy in the matter of what to produce, where to produce, how to produce, etc. and there was hardly any stagnation of production of goods for the public sector industry at small scale sector.

All this, however, changed drastically with two measures adopted after independence. One of these measures was the Industries (Development and Regulation) Act, 1951, and the other was the Industrial Policy Resolutions of 1948 and 1956.

The Industries (Development and Regulation) Act (IDRA) gave wide ranging powers to the government vet the private sector industry. The main provisions of IDRA were:

(i)   The requirement of an industrial license for all new units or for making substantial expansion by existing units;

(ii)   Grant of power to government to investigate working of specified industries or units which showed decline in production, or were being mismanaged;

(iii)   Assumption of power by the government to take over management of any unit which failed to show improvement in management of failed to implement government policies:

(iv)   Empowering the government to fix prices, methods and volume of production and channels of distribution of specified industries: and

(v)   Empowering the government to set up development councils for single or groups of industries.

Thus, the policy of licensing of industrial capacity fixing controlled prices, and controlling distribution (through fair price shops etc.) of certain goods followed in the subsequent years was the result of the adoption of IDRA of 1951. A fairly huge regulatory system for the private sector industry was created under this Act.

The elaborate regulatory framework for private sector industry, which came into existence thanks to the IDRA and the expansion of the public sector industry did serve a useful purpose for nearly two decades. The govt. succeeded in evolving a certain pattern under which the capital goods sector forged ahead at a steady rate vis-a-vis the consumer goods sector, as we noted in the preceding Lesson. However, with the passage of time, while on the one hand, the public sector industries, except a few, became inefficient in terms of different criteria of efficiency and acquired the nickname of a white elephant, on the other hand, the regulatory framework acquired a negative character in the sense that it became increasingly obstructive, bureaucratised and full of harassment to the private sector industry. Thus, while the public sector itself was failing to deliver the goods speedily and efficiently, the private sector was reeling under what came to be known as the "license permit Raj". Al this created the necessary backdrop against which the New Economic Policy or the policy of liberalisation and deregulation was adopted in 1991. The different facets of the policy of liberalisation are discussed below.

5.1   Liberalisation of Licensing Policy

It may be stated that the major regulatory mechanism devised under the IDRA was the licensing policy. However, the weaknesses of the Policy Committee (1967) and the Industrial Licensing Policy Inquiry Committee (1969). This led to the progressive relaxation of the provisions of the licensing policy in the following forms:

(i) Raising the exemption limit for industrial units:- Initially, a new industrial unit involving fixed investment of less than Rs. 10 lakhs was exempted from seeking an industrial license. Gradually, this exemption limit was raised to Rs. 25 lakhs, then to Rs. 1 crore and, further to Rs. 15 crore (or project located in non-backward areas) and Rs. 50 crores (for projects located in backward areas). In the latest rounds of liberalisation in 1990 and 1991, these exemption limits were raised to Rs. 60 crores and Rs. 76 crores before licensing requirements was done away with altogether in the latter year.

(ii) Progressively increasing the list of delicensed industries:- Initially, the IDRA applied to all the industries listed in the schedule attached to the Act. Later, however, more and more industries have been taken out of the purview of the licensing provisions of the Act. The first major liberalisation in this respect took place in Oct. 1975, when 21 industries were delicensed and unlimited expansion of production capacity was allowed to foreign companies and big business houses in 30 other industries. Later in January, 1986, 23 industries were delicensed for MKTP and FERA companies, provided these companies were located in areas

declared industrially backward by the govt. Then, in June, 1988, the number of industries requiring compulsory licensing was reduced from 56 to 26.

The final round of liberalisation took place in July, 1991, when industrial licensing was abolished, except for short list of 18 industries shown in Annexure 11 to the New Industrial Policy of 1991. These enlisted industries are related to security and strategic concerns, social reasons, hazardous chemicals and over-riding environmental reasons and items of elitist consumption. Since 1991 the list has further been shortened so that by 1997-98, the number of industries subject to compulsory licensing had been reduced to only 9.

(iii) Other forms of liberalisation:- As was discussed in Lesson 13 earlier, some business houses were defined as large business houses under the MRTP Act and these had to he compulsorily registered with the govt. These business houses were subject to special licensing provisions. These cases of capacity creation were required to be examined by the MRTP Commission.

These MRTP provisions have been gradually relaxed. According to the liberalisation of the MRTP provisions in this respect in the 1980s, the above-mentioned MRP companies were redefined so as to bring them out of the purview of MRTP Commission scrutiny and licenses have been liberally granted to these so-called monopoly, industrial houses (i.e. the large business houses) in the case of the 90 "zero industry" districts of the country and the key or core sector industries. Similar concessions were granted to the foreign (FERA) companies.

In 1985 changes were brought about licensing provisions especially in the centre achievement of economies of scale and adoption of modernisation measures. With these objectives in view re-indorsement of production capacity was liberalised and automatic increase in capacity was allowed to industrial units undertaking modernisation or units wanting to enjoy economies of scale.

The Industrial Policy 1991, considered MRTP restrictions on big business houses as a hindrance in achieving industrial growth. Therefore, the Policy stated that "The pre-entry scrutiny of investment decision by so-called MRTP companies will no longer be required."

It would be thus noted from the foregoing that the Industrial Policy, 1991, sounded a death knell of the industrial licensing policy adopted in the early 1950s.

5.2   Liberalisation of Regulatory Measures under Industrial Policy

Apart from the licensing policy provisions which have been liberalised in the last two decades, the industrial regulatory framework built up under the Industrial Policy has also come to be slowly but surely liberalised, especially since the mid-1970s.

Under the Industrial policy of 1948 and especially of 1956 industries were reserved for the public and the private sectors. In this early period after independence, the political system of the country was heavily biased in favour of the public sector which was expected to attain "commanding heights of the economy" in the years to come. Thus under the Industrial Policy Resolution of 1948 seven industries were identified in the case of which new firms were to be set up only in the public sector.

The Industrial Policy Resolution of 1956 strengthened the position of the public sector vis-a-vis the private sector further. It now increased the number of industries which were to be the exclusive responsibility of the state to seventeen. In the case of further 12 industries the state was generally to set up new enterprises. The rest of the industries were to be left to the private initiative.

The Industrial policy of 1980 also took a step towards liberalisation in that the unauthorised excess capacity which had been installed by the private sector, including the MRTP and FERA companies, was to be regularised.

The Janata Dal govt. announced its own industrial policy in 1990, which took further step or two towards liberalisation. Foreign collaborations were made easier by doing away with the need to obtain any clearance from the govt., subject to certain conditions. Similarly, foreign investments with equity participation up to 40% was to be allowed on an automatic basis, again subject to the fulfilment of certain conditions.

This process of liberation was completed with the adopting of Industrial Policy, 1991, under which:-

(i)   The number of industries to be reserved for the public sector has been reduced to just five (eight, if atomic energy, defence production and railway transport are also included);

(ii)   All restrictions on MRIP companies, i.e. large business houses have been removed; and

(iii)   Direct foreign investment would be permitted in high priority industries and technology agreements with foreign companies in this group of industries would be automatically approved.

This process of liberalisation, as it has been sought to be completed under the Industrial Policy of 1991, has attracted both support as well as criticism from the academic circles. For a supportive assessment as also a critical analysis, you are advised to look up further reading Nos. 1 and 2 of this lesson.

6.   Large Versus Small Scale Industry in India

The large and small scale industries have been defined on the basis of fixed capital invested in them in this country. Industries organised on the smallest scale, with fixed capital investment of Rs. 25 lakhs are classified as tiny sector units with effect from 1998. Just above them are the small scale industries with an investment ceiling of Rs. 3 crore. The small scale industries are further classified into the traditional and modern. The former use labour-intensive methods of production while the latter are known to use fairly capital intensive and modern methods of production. While the data relating to the former are rather sparse because most of them operate in what is called the informal sector, the latter are covered under the census of Small Scale Industries, and data relating to them are also published by the Development Commissioner (Small Scale Industries).

When one is considering the question of large versus small scale industry in India, the role of their relative importance in the economy becomes important. However, there are no consistent data available which might throw light on this aspect. The reason in that over the years, the official definition of small scale industrial (SSI) units has been changing. On keeping this definition constant over a period, we find that in 1966-1967 the small scale factories in the country. were 92% of the total registered factories and thus the large scale units accounted for 8% of the total. Twenty years later in 1986-87, the respective percentages were 87 and 13. This shown the overwhelming importance of the SSI sector in the industrial economy of the country. According to the Govt. of *India Economic Survey 1997-98*, the SSI sector contributes over 40% to the gross turnover in the manufacturing sector, about 45% of the manufacturing exports and 35% of the total exports.

At the end of 1996, there were 28.6 lakh SSI units, with output valued at Rs. 4,12,636 crore and employment of 1.6 crore workers. Between 1991 and 1996, the number of SSI units had risen by more than 5% in each of the years. This gives the lie to the criticism by some that the New Economic Policy has led to the decline of the small scale industries in India due to competition especially with the MNCs.

Within the development perspective the SSI units have their own special significance. As is well-known the SSI sub-sector fulfils some objectives of development in LDCs which its larger scale counterpart cannot do. For instance, the SSI sub-sector helps in decentralisation of industry both from the locational and ownership angles, in achieving greater equity in distribution of income, wealth and economic power, in providing more employment, in conserving scarce inputs like capital, skills and fossil fuels, and in the preservation of the environment.

All industrial policies since the Industrial Policy Resolution of 1956 have called for special measures of develop small scale and cottage industries, According to the 1956 Resolution, this sub-sector of industry was to be developed by restricting output in the large scale sector, through differential taxation and subsidies. The state was also to improve and upgrade technology for this sub-sector.

The Industrial Policy Statement, 1977; had especially focused on the development of cottage and small scale industries. The statement had especially mentioned that "It is the policy of the govt. that whatever can be produced by small and cottage industries must only be so produced". In 1973, the number of items reserved for this sub-sector was 847. Other measures included non-expansion of capacity of large scale industry, and imposition of access on this component of industry.

The Industrial Policy of 1980 started a controversy in the matter of conflict between the large and small scale industries. It stated that "the artificial decision between small and large scale industry under are essentially misconception that their interests conflicting needed to be removed." The govt. was criticised for taking such a stand. The liberalisation measures adopted in the 1980s also seem to have strengthened the large scale vis-a-vis the small scale sector. The MRTP and FERA companies received a boost during this period. Besides, nearly 200 items which had earlier been reserved for the small scale sector were dereserved.

The Industrial Policy of Janata Dal Govt. (1990) again restored the balance in favour of the small scale sector The policy stated that 836 items would remain reserved for the SSI sector. A Central Investment Subsidy was also adopted for this sector. The policy also mentioned some other concessions and facilities for SSI units like technology upgradation adequate flow of credit, fiscal support, and development of such industries in rural areas.

For the first time, a separate industrial policy was formulated for the small spate sector in August 1991. The Policy enlisted the various financial, infrastructural, marketing, technological and entrepreneurial development measures for the SSI sector.

The debate on the question of large versus small scale industry in India centres round several issues of importance in this respect. On the these is that although in nearly all the industrial policy resolutions or statements pronouncements have been made or how the govt. would deal with the issue of fair competition between large and small scale industry as well as the need to develop the latter in view of its importance in employment generation, export promotion of economising the use of scarce capital, yet much the great: attention has been paid to the development of large scale industry in terms of fiscal concessions, technology upgradation, provision of credit by public sector financial institutions, and so no.

Secondly, while the govt. has always been coming forward to nurse to health the medium and larger scale industrial sick units, yet the phenomenon of industrial sickness being much more serious in the SST sector, as you have noted in the preceding lesson, precious little has been done to help especially those small scale industrial units which are at the lower end of the scale of production.

Thirdly, while the large scale industries could be allowed to import foreign technology, the indigenous R & D efforts by the National Laboratories, Research Institutes and Universities could have been directed in a big way to upgrade and develop appropriate technology for the SSI sector. This was also not done. The R. & D. efforts has mainly been directed at the large scale industries.

Fourthly, it has been noted that the disabilities of the SSI sector vis-a-vis the large scale sector in the matter of allocation of raw materials, imported equipment, finance, development of marketing infrastructure etc., have by and large persisted. Either the government policy in these respects has remained biased in favour of the large scale sector, or the government has let the market processes to work against the SSI sector through an attitude of indifference.

Finally, a controversy has arisen regarding the question of dereservation of items for the SSI sector, in the make of recommendations of the Abid Hussain Committee on small and medium enterprises (1996). The Committee recommended that all reservations of products for the SSI sector should be abolished. The committee was of the view that the policy of reserving goods for production exclusively by the SSI units has not helped this sector. Rather the reservations policy has played only a negative role. It pointed out that a large number of the reserved goods are either not produced at all by the SSI units or the quantity produced is very small. Besides, it argued that the policy of reservations is redundant in a liberalised economy where such products can now be freely imported from abroad. So the committee

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concluded that the policy of reservation of products for the SSI sector no useful purpose. Hence the recommendation of complete dereservation.

The Abid Hussain Committee recommendation of deserving items for exclusive production by SSI units has been criticised, among others, by L.C. Jain (a former member of Planning Commission) and S.K. Goel. The major point of criticism is that the SSI sector has been nursed for its role in employment generation and as an instrument of wider dispersal of ownership of industrial asset, that is a tool of preventing concentration of economic power in the hands of a handful of big business houses. It is feared that the policy of dereservation would harm the growth of the SSI sector, increase the phenomenon of sickness among small enterprises, and it should only help in its being swamped by the big business houses and the MNCs.

The govt. had in 1997 accepted this recommendation of the Abid Hussain Committee with some reservation. Initially, in April, 1997, 15 items earlier reserved for the SSI sector, were deserved. These included ice cream, rice and dal milling, biscuits, poultry feed, hair driers, etc. In 1998, there were nearly 850 items still reserved for the sector. Regarding further dereservation, Prime Minister, Sh. Atal Bihari Vajpayee, while inaugurating the national small scale industries conference, rejected the Abid Hussain Committee recommendation on the subject. So, there is a great deal for ambivalence on the part of the govt. whether or not to dereserve items for production by this sector.

It can be said in the context of this large versus small industry debate that during the last five decades, an honest effort has never been made to devise a strategy of first of all properly evaluating the potential of the SSI sector in the matter of employment generation, output production, resource conservation and other benefits vis-a-vis those of the large scale industries, and then to accord the former its rightful share in resources and effort ear-marked for the industrial sector as a whole. Of course, it is not being argued here that virtually nothing was done for the development of the SSI sector, but it is certainly the case that the large scale industry had hugged more attention and resources than was due to it keeping in view our resource endowment and the relative benefits of small scale vis-a-vis large scale industry in the contest of our goals of planning as well as the problems that the country has been facing. The potential of SSI sector has remained under-utilised.

Exercise

1.   Discuss the important points of Industrial Policy 1991.

2.   Write short note on liberalisation of the Indian economy.

7.   Summary

This unit highlighted issues and problems related to Multinational Corporations (MNCs) in India, Indian Investment Abroad , policy of liberalization vis-a-vis Indian industry and small-scale versus large-scale industry. The New Industrial Policy of 1991 opened the floodgates of foreign enterprise into this country. Now the question arises what are the benefits of allowing MNCs to operate within the cost country? Not only in India but the world over there has been an intense debate on the merits and drawbacks of the working of MNCs

in their host countries. Some drawbacks of our dependence on MNCs include problem of self-sufficiency, the focus of MNCs on highly profitable areas, and a danger to our indigenous industries. However, several benefits of MNCs for his countries include the inflow of capital, the latest technology, their methods of marketing, management and human resource development, etc. The Industrial Policy 1991 considered MRTP restrictions on big business houses on a hindrance in achieving economic growth. Therefore, Industrial Companies 1991 sounded a death knell of the industrial policy adopted in 1950. The Industrial Policy has attracted both support as well as criticism from academic circles. However, it can be said in the context of this large versus small industry debate that the period potential of the small scale industry sector has remained underutilized as compared to the large scale industry sector.

8.   Glossary

- **Small Scale Industry:** An Industrial undertaking in which the investment in fixed assets in plant and machinery whether held on ownership terms on lease or on hire purchase does not exceed Rs. 1 crore.

- **Large Scale Industry:** An Industrial undertaking in which the investment in fixed assets of more than Rs. 10 crores.

- **Liberalisation:** Liberalisation refers to minimising the government; restriction and regulation in an economy, in return for higher involvement of private organisations.

- **Multinational Companies or Corporation (MNC):** MNCs are corporate organisation that operate in more than one country other than home country and has a centralized management system.

- **Transnational Corporations (TNCs):** TNCs are corporations which operate in other countries and do not have a centralized management system.

9.   Answers to Self Check Exercise

Answer to Q1. Refer to Section 3.

Answer to Q2. Refer to Section 5. & 5.1.

10.   References/ Suggested Readings

- Chandra, N.K. (1991). Growth of Foreign Capital and its Importance in Indian manufacturing. Economic and Political weekly, 26 (11/12), 679-690

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11. Terminal Questions

Q1. Write in detail the impact of liberalization on Industrial sector in India.

Q2. Highlight the role of MNCs in developing countries like India. Trace the shift in policy of Government of India towards MNCs, since independence.

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