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**DEBRE MARKOS UNIVERSITY**

**College of Business and economics**

**Department of economics**

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TABLE OF CONTENTS

[MODULE DESCRIPTION iii](#_Toc10625499)

[Symbols iv](#_Toc10625500)

[CHAPTER ONE: INTRODUCTION 1](#_Toc10625501)

[1.1 Definition 1](#_Toc10625502)

[1.2 Approaches to Industrial Economics 7](#_Toc10625503)

[1.2.1 The Structure-Conduct-Performance Paradigm 7](#_Toc10625504)

[1.2.2 The Chicago School of Thought 9](#_Toc10625505)

[1.2.3 Institutional Economics 10](#_Toc10625506)

[CHAPTER TWO: THE THEORY OF THE FIRMS 14](#_Toc10625507)

[2.1 The Life Cycle of the Firm 14](#_Toc10625508)

[2.2 Modern Theories of Firms 15](#_Toc10625509)

[2.2.1 Managerial Theory of Firms 15](#_Toc10625510)

[2.2.2 Principal Agent Theory of Firms 17](#_Toc10625511)

[2.2.3 Transaction Cost Theory of Firms 19](#_Toc10625512)

[2.3 The Growth of Firms 21](#_Toc10625513)

[2.3.1 Downie's Theory 22](#_Toc10625514)

[2.3.2 Penrose's Theory 23](#_Toc10625515)

[2.3.3 Mari's Theory 24](#_Toc10625516)

[CHAPTER THREE: MARKET CONCENTRATION 31](#_Toc10625517)

[3.1 Nature of Concentration 31](#_Toc10625518)

[3.2 Theory of Concentration 32](#_Toc10625519)

[3.3 Measures of Concentration 34](#_Toc10625520)

[3.3.1 Concentration Ratio 34](#_Toc10625521)

[3.3.2 The Hirschman-Herfindahl Index 35](#_Toc10625522)

[3.3.3 The Entropy Index 36](#_Toc10625523)

[3.3.4. The Dispersion Method 36](#_Toc10625524)

[3.3.5. The Lerner Index 37](#_Toc10625525)

[3.4 The Determinants of Concentration 38](#_Toc10625526)

[Chapter Four: Industrial Location Analysis 41](#_Toc10625527)

[4.1 Introduction 41](#_Toc10625528)

[4.2 Determinants of Industrial Location 42](#_Toc10625529)

[4.3 Approaches to Industrial Location Analysis 44](#_Toc10625530)

[Chapter Five: Analysis of Firm Structure 57](#_Toc10625531)

[5.1 Organization, Structure, Ownership and Control of Firms 57](#_Toc10625532)

[5.1.1 Organization 57](#_Toc10625533)

[5.1.2 Structure 58](#_Toc10625534)

[5.1.3 Ownership and Control of Firms 59](#_Toc10625535)

[5.2 Goals and Objectives of Firms 60](#_Toc10625536)

[5.3 Legal Forms of Business 62](#_Toc10625537)

[5.3.1 Types of Organizational Forms 63](#_Toc10625538)

[5.4 Structure Conduct Performance 69](#_Toc10625539)

[5.5 Measurement of Market Performance and Market Structure 70](#_Toc10625540)

[5.5.1 Measurement of Market Performance 70](#_Toc10625541)

[5.5.2 Measurement of Market Structure 75](#_Toc10625542)

[Chapter Six: Diversification, Integration and Merger 80](#_Toc10625543)

[6.1 Vertical Integration and Vertical Restrictions 80](#_Toc10625544)

[6.1.1 Vertical Relationship as a Solution to Economic Problems 81](#_Toc10625545)

[6.1.2 The Reasons for and against Vertical Integration 83](#_Toc10625546)

[6.2 Merger and Takeover 88](#_Toc10625547)

[6.2.1 Motives for Merger 88](#_Toc10625548)

[6.2.2 The Effects of Merger on Competition and Welfare 91](#_Toc10625549)

[Chapter Seven: Advertisement 96](#_Toc10625550)

[7.1 Information and Advertisement 96](#_Toc10625551)

[7.2 The Social Benefits and Costs of Advertising 99](#_Toc10625552)

[7.2.1 The Social Benefits of Advertising 100](#_Toc10625553)

[7.2.2 The Social Costs of Advertising 100](#_Toc10625554)

[Chapter Eight: Technological Progress 102](#_Toc10625555)

[8.1 Stages of Technological Change 102](#_Toc10625556)

[8.2 Invention, Innovation and Diffusion 104](#_Toc10625557)

[Chapter Nine: Industrial Policy 113](#_Toc10625558)

[9.1 Introduction 114](#_Toc10625559)

[9.2 Government Intervention 114](#_Toc10625560)

[9.2.1 The Theoretical Case for Industrial Policy 114](#_Toc10625561)

[9.2.2 Different Approaches to Intervention. 117](#_Toc10625562)

[9.3 Review of Focuses of the Ethiopian Industrial Policy 124](#_Toc10625563)

[References 144](#_Toc10625564)

[Assignment 145](#_Toc10625565)

# MODULE DESCRIPTION

**Dear Distance Learners!**

This module presents a general and brief introduction to the subject matter of Economics of Industry; which discusses the decision making processes of firms and industries under different market structures.

The knowledge in Economics of Industry has become a must to all students who pursued the study of Economics. It is known that countries like Ethiopia need a greater consideration in the development of Industrial sector; in which the majority of its population still relied on the output of Agriculture. In order to realize economic development, industrialization along with agricultural development is needed. For the complete understanding of the process of economic development, it is imperative to know the issues to be considered in the industrialization process. Especially the case of industrial policy is very important. It is believed that, after taking this course, students will get a clear picture about the theoretical and empirical content of Economics of Industry.

In doing so, great attention is given to topics such as: ***The Theory of Firms; Market Concentration; Industrial Location Analysis; Analysis of Firms' Structures; Diversification, Integration and Merger; Advertising; Technological Progress;*** and ***Industrial Policy***. Some questions for review are also given at the end of each chapter to check students' level of mastery.

***Wish You a Nice Reading!!!***

# Symbols

**Dear distance learners!** There are symbols in this module to guide you in the course of your study. Therefore, please use the following symbols properly.

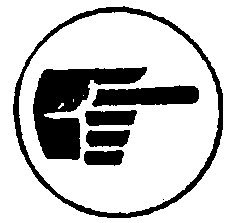


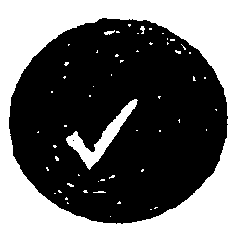
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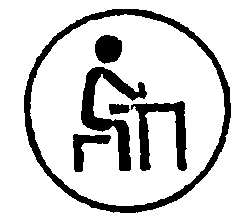


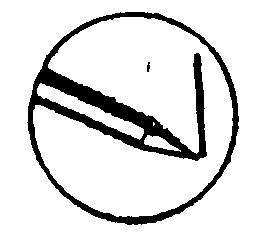
This symbol tells you that, there is a questionto answer or think about in the text.

This symbol tells you to note and remember the main/important points in each chapter**.**



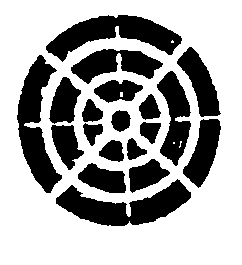
 This symbol tells you that, there are check lists to answer using “Yes” or “No” answers.

**** This symbol tells you that, there are self test review questions of each chapter.

This tells you that, there is a written assignment on the course to submit at the date of final examination.

🖏 This symbol tells you that, there is a chapter summary

# CHAPTER ONE: INTRODUCTION

** Desired Objectives of the Chapter:**

At the successful completion of this chapter students will be able to:

* Explain the meaning and scope of industrial economics;
* Give the definitions and elementary descriptions of firm, industry, market, market structure, market conduct, and market performance;
* State the paradigm of structure conduct and performance (SCP); and
* Get acquainted with the frameworks for the study of industrial economics.

**Dear distance learners!** Why industries are made the center of study? What is industrial economics? Would you mention some of the industries in your country and explain their structural characteristics? How do you evaluate the performance of textile industry in Ethiopia? What criteria do you employ to measure their performance? What is a **firm**? What is an **industry**? What is the relationship between a firm and an industry? Can you please give answers for these questions? ------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

Have you tried the questions? Good! Now you can compare your answer with the following analysis.

## Definition

Industrial economics is a distinctive branch of economics, which deals with the economic problems of firms and industries, and their relationships with a society.

How decision-making problems arise in industries? To answer this question, we have to go back to the core of economics. Economics is the science that studies human behavior as a relationship between ends and scarce means that have alternative uses. As implicit in this definition, an economic problem arises because of scarcity of means and their alternative uses in relation to the needs of an individual or a group or society as a whole. For example, the income (i.e. resources) of a consumer is generally lim­ited but his/her wants are unlimited. In this situation s/he has to adopt some criteria to achieve maximum gain from his/her limited income. This is the problem of utility maximization in the theory of consumer behavior. Similarly, for a producer, the resources *like land,* raw materials, *labor,* capital, etc., are scarce. Given such scarcity, the producer has to take decisions about production and distribution. There are several basic issues on which the producer will be taking decisions such as: what commodities s/he should produce, what should be the level of output of each, what type of technology s/he should adopt, where should s/he produce the goods, what should be the size of her/his factory, what price s/he should charge, how much wages should pay, how much s/he should spend on advertisement, should s/he borrow from banks or elsewhere, etc. All such decisions explain the producer's behavior in different market situations, which we endeavor to study in economics of industry.

In microeconomics also we study producer's behavior in relation to scarcity of resources. Because of this fact, some economists would regard industrial economics as being primarily an elaboration of, and develop­ment from, the traditional theory of the firm. Industrial economics is best defined as the application of microeconomic theory to the analysis of firms, markets and industries. Stigler (1968) argues that, industrial economics does not really exist as a separate discipline, that it is simply a differentiated microeconomics. The distinction arises from the overriding emphasis, in industrial economics, on empirical work and on implications for policy.

Of course to view industrial economics as a development of microeconomics is quite understandable. Both are concerned with the economic aspects of firms and industries seeking to analyze their behavior and draw normative implications. However, there are some differences between the two. Microeconomics is a formal, deductive and abstract discipline. Industrial econo­mics on the other hand is less formal, more inductive in nature. Micro­economics by and large assumes profit maximization as the goal of the firm which tells us to maximize it subject to some given constraints. It is passive in approach. However, industrial economics does not believe and concentrate in a single goal of profit maximization. It searches some goals of the firm from the revealed facts. It con­centrates on the constraints which impede the achievement of the goals and tries to remove these constraints. It is an active discipline in this sense. Microecono­mics, being abstract, does not go into operational details of production, distribution and other aspects of firms and industries. Industrial economics could go into the depth of such details. Public policy implications are taken care of in industrial economics; but micro­economics may ignore them if necessary. It is true that the theory of firm (i.e. microeconomics) provides the main theoretical basis for the study of industrial economics. But several important influences from outside have given a totally different character to industrial economics. In the light of such influences the conventional theory of the firm is bound to be revised.

So far, we were looking at industrial economics with the concern of decision-making in an industry from the microeconomics perspective, but it has macro dimension as well. For a society as a whole the resources for production are scarce just as in the case of a producer. With scarce resources, the problem is to produce varieties of goods and services in the current and future periods. What goods should be produced: consumer or capital goods? If capital goods are preferred, then the series of prob­lems faced by the society may be: what types of capital goods; what type of factory (large vs small scale factories); where to produce (location problem); how to distribute them; etc. These are the questions which have been posed earlier for an individual pro­ducer also. But, here we have to examine them from the societal angle. The deci­sions in the context of the society as a whole may be at variance with the decisions by an individual producer. If this is so, a state will clearly specify the policy framework in which the individual producers will function. In other words, to achieve the broader policy objectives, a state will regulate industries through varieties of ways such a nationalization, privatization, anti-trust policies, control on prices and outputs, credit controls, taxes, etc. A study of all such instruments of industrial regulation is an integral part of industrial economics. How they affect the per­formance of firms is a crucial aspect to be examined under industrial econo­mics. Such information is useful for the regulatory agency of the government to assess the success of its industrial policy.

The term **industrial organization** is commonly viewed as synonymous with industrial economics. However, Carlson (1989) made a clear distinction between them. He reasoned out that the main concern of industrial organization has become the structure of indus­tries at a particular point of time. By contrast, industrial economics encompasses both industrial organization and industrial dynamics. Industrial dynamics is primarily concerned with the evolution of industry as a process in time both at the macro, the sector or industry level, and the firm level. It differs from industrial organization in that its main focus of attention can vary from the firm, to relationships between firms, to the links between microeconomics and macroeconomics. Carlson argues that there are four main themes which encompass the subject matter of **industrial dynamics**:

1. The nature of economic activity in the firm and its connection to the dynamics of supply and therefore economic growth, particularly the role of knowledge.
2. How the boundaries of the firm and the degree of interdependence among firms change over time and what role this interdependence plays in economic growth.
3. The role of technological change and the institutional framework conducive to technological progress at both macro and micro levels.
4. The role of economic policy in facilitating or obstructing adjustment of the economy to changing circumstances (domestically as well as internationally) at both micro and macro levels – referring to industrial policy

When the economist turns the attention to industrial dynamics the area of investigation is widened to analyze topics where change is central (such as innovation) and a different perspective is taken on many of the issues of industrial organization. For example, where industrial organization would be concerned with the extent to which the presence of monopoly in the economy reduces society's welfare, industrial dynamics addresses itself to the reasons why monopoly has developed, and the question of how long it might continue.

To conclude, industrial econo­mics is predominantly an empirical discipline having micro and macro aspects. It has a strong theoretical basis of microeconomics. It provides useful applications for industrial management and public policies.

**Elements of industrial economics**

There are two broad elements of industrial economics:

* ***Descriptive and***
* ***Analytical elements.***

**Descriptive element** is concerned with the information content of the subject. It is aimed at providing the industrialist orbusinessman with a survey of the industrial and commercial organizations ofher/his own country and of others' countries with which s/he might come in contact. It gives businessman full information regarding the natural resources, industrial climate in the country, situation of infrastructure, supplies offactors ofproduction, trade and commercial policies of governments, and the degree ofcompetition in the business in which s/he operates. In short, it deals with the information about the competitors, natural resources and factors of production, and government rules and regulations related tothe concerned industry.

**Analytical element** of industrial economics is concerned with the business policy and decision-making. It deals with topics such as market analysis, pricing, choice oftechniques, location ofplant, investment planning, hiring and firing oflabor, financial decisions, product diversification, and so on. Analytical element is a vital part of the subject and much of the received theory of industrial economics is concerned with this part. However, this does not mean that the first element is less important. The two elements are interdependent, since without adequate information no one can take a proper decision about any aspect of business.

**The Firm**

A firm is an organization owned by one or jointly by a few or many individuals which is/are engaged in productive activity of any kind for the sake of profit or some other well-defined aim. Most of the firms owned by private individuals in manufacturing trade and services will aspire for profits but there may be some other such as government companies where profit motivation will be secondary or missing altogether.

##### **The Industry**

The conventional definition of the term industry is a group of firms producing a single homogeneous product and selling it in a common market. However, the restriction of a single homogeneous product is not met in practice. Most of the firms produce many outputs which may or may not be substitutable for each other. In this situation, the conventional defini­tion has no operational sense. A better approach to define the industry is to call it “a group of sellers or of close substitute outputs who supply to a common group of buyers”. In other words, we may take it in simpler terms as a group of firms producing closely substitute goods for a common group of buyers. In the terminology of the monopolistic competition we are essentially talking about the “product group”as a substitute word for the industry. The competition among the firms as well as among their products is implicit in its nature. It is not necessary that substitute goods always come from the same industry. Two goods having similar end-use may come from two different industries. For example, woolen blankets and electric room heaters are used for removal of cold but they cannot be taken together as output of one industry. The nature of these products is different; they are based on different technologies, so one can easily conceive them as outputs of different industries. Similarly, a firm produc­ing two different non substitutable goods need not be classified under only one industry.

A business is conceived as operating within an industry consisting of all businesses which operate pro­cesses of a sufficiently similar kind and possessing sufficiently similar backgrounds of experience and knowledge so that each of them could produce the particular commodity under consideration and would do so if sufficiently attractive. This is the best comprehensive definition. However, still we have to get a much precise definition of the industry where technical aspects related to products and processes heterogeneity, organizational heterogeneity and the institutional aspect of the industry are incorporated together. However, it is difficult to define industry precisely. The definition depends more or less on the purpose of the industry. There is a wide dis­parity in defining industry across countries and so the United Nations had to evolve a standard international classification of the industries for bring­ing some uniformity, particularly when industries are to be grouped together into some sectors for the purpose of comparable industrial analysis. A clear demarcation of the boundaries of the industries is very much needed in the empirical analysis since it is the industry which is the primary focus of the competitive forces. Its structure constrains the conduct and performance of the firms within it. Also, public policies are designed to regulate industries; so making the industry a unit for study is quite natural and logical.

##### **The Market**

Market is defined as a closely interrelated group of sellers and buyers for a commodity. The term is not equivalent to the industry since in the latter, we will be looking only at the seller's side of the market. By including the buyer's side, the term becomes more comprehensive connoting the composition of the buyers and their geographical location along with the industry. A heterogeneous group of closely substitute goods will have a market, but there may be markets within the market for every homo­geneous good. Within the market, the goods will be uniform. In practice it may be difficult to define the precise boundary for a market. A market is said to be imperfect if there is lack of information about it, there are entry barriers to it and the product is not uniform.

**Market power**

Market power- refers to the influence that any particular buyer or seller can exercise over the price of a product. It indicates the degree to which a business firm is able to earn larger than normal profits. Market structures range from highly competitive, in which there are so many buyers and sellers that none can influence the market price, to the other extreme in which a single buyer or seller faces no competition and therefore wields great market power. Market power is inversely related to both the degree of competition in the market and the ease of entry and exit.

**Contestable market**

Contestable market-is a market in which competitive outcomes can be observed. Its fundamental feature is low barriers to entry and exit; a perfectly contestable market would have no barriers to entry and exit. Contestable markets are characterized by 'hit and run' entry. If a firm in a market with no entry or exit barriers raises its prices above marginal cost and begins to earn abnormal profits, potential rivals will enter the market to take advantage of these profits. When the incumbent firm(s) responds by returning prices to levels consistent with normal profits new firms will exit. In this manner even a single-firm market can show highly competitive behavior.

## Approaches to Industrial Economics

There are at least two major approaches to the study of Industrial Economics. These are the Structure-Conduct-Performance (SCP) and Price Theory. The Structure-Conduct-Performance paradigm is descriptive and provides an overview of industrial organization. The second approach uses microeconomic models to explain firm behavior and market structure.

## 1.2.1 The Structure-Conduct-Performance Paradigm

According to the Structure-Conduct-Performance (SCP) approach, an industry's **performance** (the success of an industry in producing benefits for consumers) depends on the **conduct** (***behavior***) of firms. **Conduct**, in turn, depends on the **structure** (factors that determine the competitiveness of the market). The structure of an industry depends on basic conditions, such as technology and demand for a product. For example, in an industry with a technology such that the average cost of production falls as output increases. Then, the industry tends to have only one firm, or possibly a small number of firms. If only one firm monopoly sells output in an industry, it sets a price that is well above its marginal costs of production. The Structure-Conduct-Performance approach is a very general way to organize the study of industrial organization and can be used to organize the material in the module.

The Structure-Conduct-Performance relationship can be shown as follows:

**Structure**

Nature of Sellers and Buyers

Barriers to Entry of New Firms

Product Differentiation

Vertical Integration

Diversification

**Conduct**

Advertising

Research and Development

Pricing Behavior

Plant Investment

Legal Tactics

Product Choice

Collusion

Merger and Contracts

**Performance**

Price

Product Efficiency

Allocative Efficiency

Equity

Product Quality

Technical Progress

Profits

From the above figure, we can understand that if for example there is a monopoly market structure in an industry, then the monopolist charges a higher price beyond its additional costs of production (marginal costs of production, MC). It sets price that is well above its marginal cost of production. This is the conduct (behavior) of a monopoly market structure. If the demand for the monopoly's product is relatively inelastic, then, the monopolist charges higher price. This results in a better performance of the monopolist i.e. higher price, and better profits. For many decades, economists have conducted Structure-Conduct-Performance (SCP) studies concerns the relationship between market performance and market structure. The market performance is the success of a market in producing benefits for consumers. Market structure consists of those factors that determine the competitiveness of a market; which affects market performance through the conduct or behavior of firms.

## The Chicago School of Thought

The Chicago School, which gives high accord to Conduct, criticised the SCP model for being non-theoretical and for having diverged too great an extent from the basic neoclassical price theory. The School argues that even if their (SCP) empirical work was based on more realistic assumptions, it came up with nothing more powerful in predictive ability than the traditional perfect competition model.

The logic of the Harvard Tradition is the empirical association that exist between performance and structure. It should, however, be noted that such empirical association does not suggest causation between the variables. According to the SCP, high concentration (a small number of firms accounting for a large part of market) was believed to lead to collusion and hence higher profits thereby calling for some sort of intervention to counter collusion (antitrust legislation). The Chicago school argued that where concentration was high, firms tended to be large and larger firms tended to be more efficient and it was this efficiency that led to higher profits. So, if greater efficiency was the cause for higher profits, there is a need for government intervention. In fact, intervention would be counter-productive.

The school sees the world as one in which competitive forces generally hold sway and argue that monopoly may be benign, or even beneficial, to economic welfare. They highlight monopolistic excess in various degrees. Thus the Chicago school differs from the Harvard school with respect to:

* Methodological front, Chicago school relies much more heavily in their analysis on standard (often competitive) economic theory, which contrasts with sometimes crude theoretical analysis employed by early Harvard writers.
* The fact that the Chicago writers have been sceptical of arguments advanced for policy intervention in private industry, frequently arguing that elements of conduct and structure viewed with concern by some economists in fact offer no real case for government intervention. Hence, there is very little scope for government anti-trust policy. Therefore, the Chicago school has conservative attitude to government intervention.

## Institutional Economics

In this world, institutional arrangements give the process of exchange and arrangement of transactions. These transactions have costs, which are the expenses of trading with others above and beyond the price, such as the cost of writing and enforcing contracts. Using formal price theory analysis, the transaction costs approach uses differences in transaction costs to explain why structure, conduct and performance vary across industries.

According to the transaction cost school, institutions that lower the costs of transactions are the key to the performance of economies. These costs include those of ***information***, ***negotiation, monitoring, coordination*** and ***enforcement of contracts***. When transaction costs are absent, the initial assignment of property rights does not matter from the point of view of efficiency; because, property rights can be voluntarily adjusted and exchanged to promote increased production. The problem is when transaction costs are substantial. Indeed, usually, transaction costs are substantial. In the case of substantial transaction costs, the allocation of property rights is critical.

In the historical growth process there is a trade-off between economies of scale and specialization, on the one hand, and transaction costs on the other. In a small, closed, face-to-face peasant economy, transaction costs are low. However, the production costs are high in a small economy because specialization and division of labor are severely limited by the extent of market defined by the personalized exchange process in a small community. In a large complex economy as the network of interdependence widens the impersonal exchange process gives considerable scope for all kinds of opportunistic behavior (cheating, shirking and moral hazard) and the costs of transacting can be high. In western societies, complex institutional structures have been devised (for property rights, formal contracts and guarantees, corporate hierarchy, vertical integration, limited liability, bankruptcy laws, and so on). This reduces the uncertainty of social interaction, and prevents the transactions from being too costly and thus allows the productivity gains of large scale and improved technology to be realized.

In recent development literature, the institution of interlocking of transactions (in labor, credit and land relations) has been rationalized as a device to save transaction costs and to substitute for incomplete or nonexistent credit and insurance markets. In general, institutions can be obstacles if they are not suitably reorganized in tune to development.

The question is how these institutions affect market structure and, then, the existence and performance of firms? According to Coase, the use of the market place involves costs. These costs help to determine market structure. For example, where the cost of buying from other firms is relatively low, a firm is more likely to buy supplies from others than produce the supplies itself.

There are four concepts related to transactions. These are:

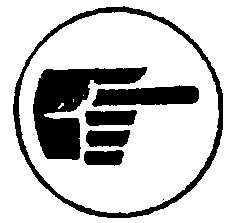
1. Markets and firms are alternative means for completing related sets of transactions. For example, a firm can either buy a product or a service or produce it.
2. The relative costs of using markets or firms' own resources should determine the choice.
3. The transaction cost of writing and executing complex contracts across a market vary with the characteristics of the human decision makers who are involved with the transaction on the one hand, and the objective properties of the market on the other hand.
4. These human and environmental factors affect the transaction costs across markets and within firms.

Under what circumstances will transaction costs be lower when internalized than when left to be negotiated in an external market? The factors can be either **environmental** factors or **human** factors. The key environmental factors are ***uncertainty*** and the ***number of firms***, whereas, the key human factors are ***bounded rationality*** and ***opportunism***. Bounded rationality is the limited human capacity to anticipate or solve complex problems. Problems arise when uncertainty is combined with bounded rationality, or where the managers of the few firms in an industry behave opportunistically.

Thus, in a world of great uncertainty, it may be too difficult or costly to negotiate contracts that deal with all possible contingencies. As a result, firms may produce internally even though it would be cost effective to rely on markets.

When the number of firms is small and individuals are opportunistic, firms may not want long term contracts for fear of being victimized in the future. For example, a firm that relies on another to supply a factor that is essential to its production may be vulnerable to blackmail became it cannot operate if its supply is stopped. This problem is likely to be important if there are few alternative supplies.

Thus, reliance on markets is more likely when (1) there is little uncertainty and (2) there are many firms (competition) and limited opportunities for opportunistic behavior. When these conditions are reversed, firms are more likely to produce for themselves than to rely on markets.

**Main Points:**

* Firms
* Industries
* Descriptive element
* Business policy
* Transaction costs
* Environmental factors
* Structure
* Conduct
* Performance
* Price theory
* Enforcing contracts
* Human factors

🖏 **Chapter Summary:**

Industrial Economics deals with the economic problems of firms and industries, and their relationship with the society. In literature, it is commonly known as ‘Economies of Industries’. There are two broad elements in industrial economics: the descriptive element which is concerned with the information content of the subject matter. The second element deals with business policy and decision making. The latter element is the analytical part dealing with topics such as: market analysis, pricing, choice of techniques, location of plants and others.

We need to study Industrial Economics because it is instrumental to the formulation and implementation of industrial policies that are essential for sustainable development of a nation.

It is difficult to know the true beginning of industrial economics because of non-availability of facts. However, there is some evidence that works of Adam Smith laid the foundation for the discipline. There has been steady growth of the field, particularly during the last fifty years

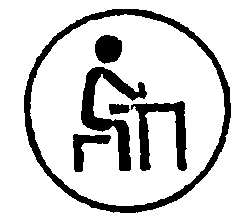
Industrial Economics and Microeconomics are similar in that both are concerned with: the economic aspects of single firm and/or industry seeking to analyse their behaviour and draw normative implications. Industrial economics has also macroeconomic aspects in that it tries to address questions such as: what, how and for whom to produce at societal level.

The **Structure, Conduct and Performance** relationship has a central place in the study of industrial economics. Market structure deals with the characteristics of the organization and composition of a market that seems to exercise a strategic influence on the nature of competition and pricing within the market. Market Conduct refers to decision making with regards to pricing and output, investment, marketing, and product design. Market Performance is all about allocative efficiency, profitability, equity, employment effects and rate of innovation of a firm.

As per the Harvard Tradition of the SCP paradigm, there is a priori relationship between market structure, market conduct and market performance. That is, market structure of an industry determines its market conduct which in turn directly or indirectly determines certain important dimensions of its performance. This link gives us the basic framework for the study of the economic behaviour of firms and industry in the market.

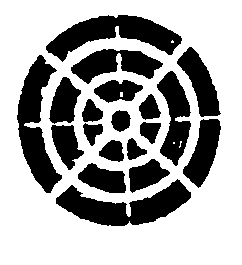
One critic from within the SCP paradigm against the initial SCP theory is the linearity of the relationship among **S, C and P**. The linear S-C-P model assumes a very simple direct and one-way causal relationship. In actual world, however, industrial relationships are not so simple and linear.

Since 1970s, there has been increasing recognition that SCP fails to give adequate insights into many issues within the field of industrial economics. Thus, the Chicago School was developed. The school argues that even if the SCP empirical work was based on more realistic assumptions, it came up with nothing more powerful in predictive ability than the traditional perfect competition model.

 **Self Test Review Questions:**

1. What is the difference between a firm and an industry?
2. State the cause and effect relationship among structure, conduct and performance?
3. Why do you think firms exist?
4. What are the benefits of internalizing costs as compared to other possibilities?

# CHAPTER TWO: THE THEORY OF THE FIRMS

**Desired Chapter Objectives:**

After going through this chapter, students will be able to:

* Clarify what different theories have been developed regarding the firm;
* Understand the neoclassical theory of the firm;
* Understand what life cycles the firms undergoes in its development;
* Understand the modern theories of the firm such as: the managerial theory, the principal agent theory and the transaction cost theory of the firms;
* Identify the relevant theory of the firm for a given industrial context;
* Pinpoint the merits and demerits of the various theories of the firm and industries; and
* Identify many theoretical backgrounds that assist them to solve problems existing in industrial sector of any given economy.

**Dear distance learners!** Could you explain why do we need to have theories of the firm?

-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

Could you mention some of the theories that govern the firms?

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## 2.1 The Life Cycle of the Firm

Dear learners, can you imagine how the firm grows? What is life cycle of the firm? A firm, once again, is an organization that transforms inputs (resources it purchases) into outputs (valued products that it sells). The firm is now seen either as a more complex organization where control and ownership are distinct, and/or as a nexus of different activities composed of diverse constituents.

If the demand for a product is small, then the collective output of all the firms in the industry is small, each firm must undertake all the activities associated with producing the final output itself. Why do some firms not specialize in making one of the several inputs that they sell to another firm to assemble the final product?

The answer is when the industry is small it does not pay for a firm to specialize in one activity even if there are increasing returns to scale. A specialized firm may have large setup (fixed) costs. If the specialized firm produces large quantities of output, the average setup cost or fixed cost per unit is small. In a small industry, however, the set up costs per unit are large. If specialized firms are to earn a profit, the sum of the specialized firms' prices must be higher than the cost of a firm that produces everything for itself.

As the industry expands it becomes profitable for a firm to specialize, because the per unit transaction costs fall. That is, as the industry grows, firms vertically disintegrate. When the industry was small, each firm produced all successive steps of the production process, so that all firms were vertically integrated. In the larger industry, each firm does not handle each stage of production itself, but buys services or products from specialized firms.

As an industry matures further, new products often develop and reduce much of the demand for the original product, so the industry shrinks in size. As a result, firms again vertically integrate.

## 2.2 Modern Theories of Firms

### 2.2.1 Managerial Theory of Firms

Throwing some light into the neoclassical theory, the managerial theory emphasized the complex nature of the modern corporate firm. Firms are owned and controlled in a variety of ways. A firm must raise money to finance itself, decide how its business is to be managed, and distribute its revenues to those who have contributed to its activity. According to Berle and Means, the influence of shareholders in the decision making process of large firms has diminished from the turn of 20th century.

This left much of the decision making to the manger whose objectives could be different from those of the owners of the firm. If, in terms of its influence on managers' salaries, size of firm's profitability, then growth could be a more important objective of firms than profit.

Other reasons why the hired managers may be more preoccupied by sales or revenue maximization than by profit maximizing include the following.

1. If sales fail to rise, it indicates reduced market share and then it leads to increased vulnerability to the actions of competitors.
2. The firms' sales are considered as an indicator of companies' performance.
3. Financial markets and distributors are responsive to rising sales.

Baumol attempts to reconcile the behavioral conflict between profit maximization and the maximization of the firm's sales (i.e. its total revenue). Baumol assumes that the firm maximizes sales revenue subject to a **minimum profit constraint**. The following figure 2.1 depicts the firm's Total sales Revenue (TR), Total Cost (TC) and Total Profits ().

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| TR |  |  |  |  |  | TC |  |
| TC |  |  |  |  |  |  | TR |
| П |  |  |  | ∏p | ∏r |  |  |
|  |  |  |  |  |  |  |  |
| ПP |  |  |  |  |  |  |  |
| ∏C | -------- | ------------- | --------------------- | -------- |  |  | ∏ |
| ∏r |  |  |  |  |  |  |  |

0 qp  qc qr Output

***Figure 2.1 Revenue Maximization***

From figure 2.1 above, qp is profit maximizing output, qr is revenue maximizing output and qc is revenue maximizing output subject to a ***minimize profit constraint***, Пc.

The revenue maximizing level of output is the level at which the marginal revenue is zero (and the elasticity of demand is unity). The output, qc is that which is produced by the revenue maximizing firm when constrained by a minimum profit Пc. The difference between the maximum possible level of profit and minimum constrained profit (i.e. between Пp and Пc) is called *sacrificeable*. In the view of Baumol, these profits will be voluntarily given up by the firm in order to increase sales revenues.

If the sacrificed profits are too apparent, they would tend to attract other firms acting in the same market, and would tend to create the ultimate threat of takeovers. This is why the sacrifice will be done quietly and only in way which do not look life sacrificing.

In any event, the profit-maximizing output will generally be less than the revenue maximizing output. The profit-constrained revenue-maximizing output may be greater than or less than the revenue-maximizing output. If qc < qr, then the firm will produce qc.  If qc > qr, then the firm will produce qr. That is, the profit-constrained revenue- maximizing output may be greater than or less than the revenue maximizing output.

The managerial theory of the firm was further developed by a number of writers, in particular by Marris; who formalized the hypothesis that managerial control would lead to growth as an objective, showing that shareholders were a less important constraint on such firms than financial markets. Marris model is dynamic in the sense that it incorporates growth. Like Baumol's model, Marris' model assumes that mangers will act to maximize their utilities rather than profits, but in contrast to Baumol's, it assumes that this will be achieved through growth rather than sales.

The Three major principles around which general managerial theory came to be articulated during 1960s are as follows.

1. In a firm, the ownership (by shareholders) is distinct from control (exercised by managers).

2. Because of this separation, it is possible to conceive of a divergence of interests of owners and controlling managers.

3. Firms operate in an environment that affords them an area of discretion in their behavior.

### 2.2.2 Principal Agent Theory of Firms

At its simplest, principal-agent theory examines situations in which there are two main actors, a **principal** who is usually the owner of an asset, and the **agent** who makes decisions which affect the value of that asset, on behalf of the principal. As applied to the firm, the theory often identifies the owner of the firm as principal and the manager as agent, but the principal could also be a manager, and an employee nominated by the manager to represent him/her in some aspect of the business could be the agent. In this case the asset, which the agent's decisions could enhance or diminish, is the manager's reputation.

To explain the relationship between the principal-agent (or agency) theory, we turn to Williamson's theory. There are two main such approaches or branches; monopoly which views contracts as a means of obtaining or increasing monopoly power; and efficiency which views contracts as a means of economizing. Among the major concerns of principal-agent theory is the relationship between *ownership* and *control*. In this respect it can be seen to have emerged from the managerial theory tradition. Principal-agent theory can be seen as a new industrial economics version of sub-set of managerial theory.

Principal-agent theory sees the firm as does neoclassical theory as a legal entity with a production function, contracting with outsiders (including suppliers and customers) and insiders (including owners and managers). There is information asymmetry between principals and agents but unlike in transaction cost theory (which usually assumed bounded rationality) there is often assumed to be ***unbounded rationality***. Unbounded rationality refers to the ability of those designing the contract to take all possible, relevant, future events into consideration. The principal may know various things not known to the agent (in relation, for example, to the prospects of the firm), and vice versa (the agent may have a lower commitment to the firm than s/he needs the principal to believe).

The major difference between principal-agent and transaction cost theories is that the former (principal-agent theory) focuses on the contract, the later (transaction cost theory) focuses on the transaction. The problem for principal-agent theory is how to formulate a contract such that the shareholders (the principal) will have their interests advanced by the manger (the agent). In fact, the manager's interests may diverge from those of the shareholders. Or, is there any class of reward for the manager (the agent) such as that can yield *Pareto efficient* solution for any pair of utility functions both for the agent and the principal. Pareto efficient means making one party better off without making the other party worse off.

Where the objectives of the agent are different from those of the principal, and the principal cannot easily tell to what extent the agent is acting self interestedly in ways diverging from the principal's interests, and then the problem of **moral hazard** arises. The problem originated in the insurance industry, will change their behavior, resulting in large claims on the insurance company than would have been made if they had continued to behave as they did before they had insurance. In addition, it must be difficult to determine whether this behavior has conformed to the terms of the contract. This arises particularly where the agent is a member of a team. Principal agent theorists have attempted, by specifying conditions such as that the manager's salary be equal to the expected value of his/her managerial product, to design contracts on the basis of which there will be an incentive for the manager to act in the interests of shareholders. However, the importance of the team element in managerial jobs discredits the notion of a managers' marginal product.

In the context of relations between principals and agents, moral hazard refers to the possibility that, once there is a contract, the agent may behave differently from how s/he would have behaved had s/he not had the contract.

There are a number of ways to control moral hazard. Rather than attempting to circulate the value of each manager's marginal product, managers could each be paid a **salary plus a bonus based on the performance of the company**. Other examples to solve employment contract problems include the development of efficient ways of monitoring the performance of individual managers (or management teams), providing incentive contracts which reward agents only on the basis of results, bonding (where the agent makes a promise to pay the principal a sum of money if inappropriate behavior by the agent is detected) and mandatory retirement payments. It should be emphasized to the extent that managers want to keep their jobs, the free markets (for corporarate control, managerial labor and the firms' products) can control moral hazard.

The most obvious solution to the problems of conflict of interest between the principal and agent is for the principal to become his/her own agent. Where there is team production, and the existence of a monitor can reduce shirking by enough to pay his/her own salary, then it may be appropriate for that monitor to be the owner of the firm. If he/she is not the owner then there should be a need to monitor the monitor, to ensure that he/she does not shirk.

### 2.2.3 Transaction Cost Theory of Firms

*Rights of ownership (or property rights*) to a good or service must be able to be established before a market for that good or service can exist. Transaction costs are those incurred in enforcing property rights, locating trading partners, and actually carrying out the transaction. If property rights over a good cannot be established, then transaction cost theory is inappropriate.

According to Coase, it is due to the existence of transaction costs that firms exist. If it is through the market mechanism that prices determine how factors of production are to be combined to produce what goods, for what markets, then why are organizations necessary? An esteemed affiliate! Can you please think of why? It is where transactions between individuals would be too difficult, inefficient or expensive an organization is needed. If an organization could coordinate transactions at a lower cost than if they were market transactions, then firms emerge to do this coordination. This is because an organization could coordinate transactions at a lower cost than market transactions.

It is in this way firms emerge to do the coordination and preclude these transitions by internalizing them. By doing this, transactions can be internalized. In general, if the costs of making an exchange are greater than the gains with that exchange would bring that exchange would not take place and the greater production that would flow from specialization would not be realized.

Apart from reducing transaction costs, firms obtain additional benefits by internalizing transactions. The internalization of transactions enables the exploitation of ***economies of scale*** or ***economies of*** ***scope***. The extent to which economies of scale can be exploited determines the size of the firm. Under what circumstances will transaction costs be lower when internalized than when left to be negotiated in an external market?

To answer this question Williamson identified **bounded rationality**, **opportunism** and **asset specificity**. ***Bounded rationality*** refers to the imperfect ability to solve complex problems. This takes place when there is imperfect ability to process the available information, and/or when the information itself is imperfect (i.e. there is uncertainty), both in relation to the present and future events.

***Opportunism*** relates to how people will respond to conflicts, given the existence of bounded rationality. They will behave opportunistically if they act in their self interests by, for example, finding loopholes in contracts. If there was unbounded rationality, the potential opportunistic behavior would be known, and avoided.

***Asset specificity*** refers to assets, involving non-trivial investment, that are specific to particular transactions (e.g. skills in an employer-employee contract). Asset specificity refers either to physical or human elements in the transaction. Market contracting gives ways to bilateral contracting, which in turn is supplanted by unified contracting internal governance, as asset specificity is deepened.

If there was no opportunism, there would be no need for internalization. Without opportunism, the transaction would take place within the market rather than within a hierarchy market. But, bounded rationality is a precondition for opportunism. So, opportunism and bounded rationality are likely to give rise to internalization. This, however, is still only part of explanation for why and where internal governance will be preferable to market governance.

## 2.3 The Growth of Firms

Growth is an important dimension of a firm whether it is a small or a large one. Maximization of growth may be the goal of the firm or an instrument to achieve some other goals like maximization of profit or sales or managerial utility, etc.

Most of the large firms that we see around were small when they were established. In the course of time they grew continuously and attained their present status. Why do firms grow to such an extent? Why do firms grow at all? Is it a natural process? Are there market forces which compel a firm to grow over time?

To give answers for these questions, it is better to examine the desirability of growth at macro level. Every country irrespective of its political ideology, pattern of economy and size aspires for rapid economic growth. To bring growth in the country, it is necessary to create production capacity. This production capacity can be increased via the establishment of new factories owned by new entrepreneurs or by expanding the existing factories in an industry. When new firms join an industry it implies an increase in competition among sellers. The market power of individual sellers decreases with an increase in competition (i.e. number of sellers) in the industry.

This eventually leads to a situation when every firm losses its market power completely as we find in perfect competition. The existing firms will expand themselves and block the entry of new firms in order to maintain or increase their market power for greater profits in the future provided that there are no institutional restrictions. Hence, it is a natural inducement which the market provides to the existing firms for growth. Through growth, the firm will be able to enlarge its size. The larger the firm, the more perfect the control it assumes over its environment and the higher the efficiency with which it plans its overall activities. A growing firm may be able to increase its market share in the industry. It may acquire more market power which will have effects on earnings of the firms. Introduction of new products, new production processes and organizational techniques as parts of the growth strategy of the firm will enhance the competitive power of the firm as a result of which it will be able to withstand or survive in the creative destruction.

In a corporate economy where there is a separation between ownership and management, firms will be having growth as a major objective since this suits managers. This is because, managers want more pay; perks and subordinates and the like which accrue to them when the firm grows larger and larger. While maximizing their own ability, managers have to take the interest of the shareholders of the company into account. For this, they use a **minimum profit constraint** or **stock market value constraint**. If this is overlooked by them, and if profit or value of the firm in the stock market declines, the firm will be having a threat of being taken over by the other firms. In this case the job security of the managers will be in danger. If we accept this proposition then the firm has to grow as it will be the sole objective of the firm in the market. This theory of growth of the firm has been contributed by Downie, Penrose & Marris.

### 2.3.1 Downie's Theory

According to Downie, alternative forms of market structure and conventions govern business behavior. This means rules of the game affect the dispersion of efficiency between firms and the rate of technical progress. For him in an industry, there will be dispersion of efficiency across the firms, i.e. some firms having greater efficiency than the industry average and some lower than this.

The source of variation in efficiency (measured in terms of unit costs) across the firms is their *technical processes*. This means that those firms having access to technologically superior processes and/or products are taken to be more efficient than the firms which do not have such facility. The technological superiority of a firm is established as a result of its past innovations which are patented or kept secret by it, and the accumulated skill or experience gained by the firm in its activities.

Given the competitive environment and assuming that the firms pursue the growth maximization objective, the process of growth of the firm's model starts with the postulation of the ***steady encroachment on the market share of the less efficient firms by the more efficient firms***. The efficient firms having advantageous access of the means of growth will be able to encroach on the market shares of the less efficient firms more or less rapidly.

The means of the growth are capacity of production and customers. To expand capacity, finance is needed which may be raised either internally or externally. In both situations, access to finance depends on the rate of profit. The efficient firms are assumed to have high rate of profit. Thus, they will be able to raise finance for capacity expansion. This means that the rate of growth of capacity expansion has a positive relationship with the rate of profit.

On customer side, an *efficient firm having better technique* or *efficient production* may be able to sustain a price reduction for its product and thus attract new customers which affect the markets for the less efficient firms adversely. The attraction of new customers or expansion of market by the efficient firm through its price reduction strategy will be feasible up to certain limit. This is possible as long as it is operating on the elastic zone of its demand curve, beyond which further reduction in price for expanding the market may lead to a reduction in the rate of profit for the firm. This implies an ***inverse relationship between the rate of customer expansion and the rate of profit for the firm.***

There are now two opposing trends in the growth process of the firm. The **capacity side** of the growth varies *positively* with the rate of profit and the **market side** i.e. the rate of customer expansion varies *inversely* with the rate of profit. These two opposite trends will set the upper limit on the rate of growth of the firm. At that limiting point, the rate of profit and the product price of the firm are to enable capacity and market of the firm to grow at the same rate.

In figure 2.2, the optimum situation for the rate of growth of the firm would be at point G where capacity and the market growth curves intersect.

Capacity Growth Curve

Rate of Profit

G

Market Growth Curve

0 R\* Growth Rate

***Figure 2.2 Optimum Growth Rate of the Firm.***

### 2.3.2 Penrose's Theory

According to Penrose, the goal of the firm should be to increase ***total long-run profits***. To achieve this objective, the firm continues to make investments as long as it gets positive return from new investments. It takes the advantages of productive opportunities for expansion which it thinks profitable.

Penrose considers the firm as a pool of productive resources organized within an administrative framework. The set of activities which the firm is aware of and able to undertake at a profit, defines its **productive opportunity**. The firm will continue to grow if allowed by its productive opportunity but there will be some restraints which will limit the productive opportunity and hence growth of the firm. The concept of the productive opportunity is conceived as the basic elements in the theory of the growth of the firm by Penrose.

Every individual firm is supposed to have a unique productive opportunity which makes the firm unique itself. To explain this point, Penrose defined productive resources as a bundle of *potential services* rather than merely the physical quantities. The physical amount of a resource may be the same but its use or service may be different in different firms. Service implies a function or an activity.

How does growth process proceed? The process of growth is not automatic in the Penrosian framework. It is a deliberate and conscious choice of the management. If the managerial services are adequate, the firm can sustain higher rate of expansion, otherwise not. It is possible to expand the managerial services by the recruitment of the new managerial resources. The existing managerial resources of the firm would not be increased significantly by such recruitments immediately. Its rate of expansion is very much limited which will put a restraint on the expansion of the firm also. The managerial restraint limits the productive opportunity of the firm at any given time which in turn puts an upper limit to its growth.

There are other restraints on the growth of the firm as seen in practice, such as the financial and market restraints. Penrose, however, treated them as insignificant in limiting the growth rate of the firm. She emphasized solely on the managerial restraint for this.

In what direction will a firm grow? There are *internal* and *external***inducements** and **obstacles** for expansion of the firm. The ***external inducements*** include changes in *demand*, *technological innovations* and other changes in *market conditions*. ***External obstacles*** include *competition* from rivals patent or other restrictions on the *adoption of* *new technology,* *barriers to entry* and *market scarcity* of input.

### 2.3.3 Mari's Theory

A coherent and integrated theory of the growth of the firm has been developed by Maris. His theory is applicable to a corporate firm owned by shareholders but controlled by mangers. Shareholders, being owners of the firm, are assumed to have the objective of ***maximizing the return on their investments*** in the firm. Managers of the firm, on the other hand, aspire to maximize ***their own interests*** which are taken care of by *higher pay*, *perks,* *power*, *prestige*, etc. All such things are postulated to be positively correlated with the growth of the firm in Maris model. It implies that mangers of the firm are assumed to have the rate of growth of the firm as their objective. The return on shareholders' investment is realized in the form of dividend and capital gains through the life of the firm. The higher the expectation of the earnings by shareholders from a firm, the greater will be its value in stock market and vice versa. Hence, the growth in **market value of equity shares of a firm** can be taken as a proxy variable to specify the profit maximization goal of its shareholders.

Consequently, he specified the rate of growth as the overall goal of the firm subject to a ***stock market valuation constraint***. The constraint takes care of the objective of the firm's shareholders. They have to be assured a minimum level of earnings (i.e. a minimum market value of the shares as a proxy for profits) on their investment; otherwise the job security of the managers will be in danger.

So, the stock market valuation constraint on growth of the firm is very important in Maris's model. Thus, this constraint is called the **security constraint** since it provides security of *profits to the shareholders* and *security of jobs to the managers* of the firm. Financial constraint on growth of the firm will also be taken care of by it.

Maris growth of the firm can best be explained with the help of the following relationships.

1. **The Steady-State Growth Condition:**- To simplify the analysis of the growth of the firm, Maris made the assumption of steady-state growth under which all characteristics of the firm such as assets, employment, sales, profits, etc grow at the same constant exponential rate over time. The implication of the steady-state growth is that supply and demand side of the firm grows overtime at the same rate. If this is not the same, there will be either ever growing spare capacity when supply grows at a faster rate than demand or ever growing excess demand when demand grows at faster rate than supply.

The supply side of the growth is represented by its assets base which includes:

i. Physical assets comprising of fixed assets and stocks at a replacement value;

ii. Financial assets at current market value including cash;

iii. Goodwill mainly generated by market expenditure; and

iv. Know-how as a result of R&D investment.

The demand side of the firm is difficult to be specified precisely as the product structure of the firm would be changing over time because of diversification process. For every new product, there will be a different capital-output ratio as well as a different value added to sales ratio making the equality of growth of supply and growth of demand sides very much complex. However, under the assumption of steady state, such ratios are constant, so demand as measured by sales value grows at the same constant rate as gross assets.

1. **The Growth-in-Demand Function:-** The growth-of-demand is one side of the growth of a firm. If demand prospect for the existing and potential products of the firm is brighter then it will grow, otherwise not. If the demand for the product of a firm reaches to its saturation point, then the firm will be stagnant. To avoid this situation, Maris advocated **diversification** as the most effective way. Diversification is not only a competitive strategy in the market but an effective way to grow further as Penrose advocated. Maris specified the growth of demand function as gd= f1(d), where gd is growth of demand and d is the rate of successful diversification, and f1 shows the functional relationship between gd and d.
2. **The Growth-of-Supply Function:-** The growth-of-supply means an increase in the assets (fixed as well as current) of the firm. The growth rate of assets will be simply the ratio of new investment of capital employed. The new investment depends on the finance available. A firm can raise finance primarily through three sources: i. Retained earnings, ii. Borrowings: including bonds and debentures, and iii. Issues of new equity shares.

For Simplicity let us consider the new investment finance only by retained earnings as follows.

I = rП where, I= new investment, r = retention ratio, and 𝜋 is net profit. From this we get

gs = = r = rP, where gs = growth-of-supply,

K = Capital Stock; and P = rate of return on capital = 

In practice, a firm raises money for new investment from other sources also. The capacity of raising funds from external sources (e.g. borrowings and equity capital of a firm) depends on its long term return on capital. If expected rate of return is high, the potential shareholders will buy shares of the firm and creditors will provide money to it, otherwise not.

From this assumption, we derive the following growth–of–supply function as:

Gs=P, Where  = amount of new investment financed per unit of profit earned. There will be some maximum upper limit for  determined by the managers of the firm after taking into account the riskiness of different modes of financing. If retained earnings are increased, the dividend comes down which may affect the market price of the shares. If borrowings are increased further then the fixed interest charges of the firm will go up which may reduce the earnings of the firm.

1. **The Cost-of-Expansion Function:-** In Maris model, it is the rate of successful diversification that determines the growth of demand of the firm. The rate of diversification depends on cost of expansion and, if cost of expansion grows fast, the profit rate on capital is likely to decline. Hence, the relationship between the rate of diversification and the rate of return on capital is defined as:

D = f2 ().

The inverse of profit rate is a proxy for cost of expansion. That is:

P = 

Where m =  = Profit margin, Q is the value of output, and V = capital-output ratio.

Substituting  for P in the 1st equation, we get

d= f2 = f2 = f2 

This relationship shows that, the rate of diversification ***directly*** related to **capital-output ratio** and ***inversely*** to the **profit margin**.

Maris model can be summarized as follows:-

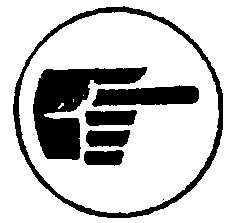
gd = f1(d) …………………….. growth- in-demand function

gs = p ……………………… growth-of-supply function

d = f2(= f2………………. the cost-of-expansion function

gd = gs ………………………….. equilibrium condition for growth and

gd = f3( …………….………substituting the cost- of- expansion function in growth in demand function. Equation gd = f3(shows the growth of demand as an inverse function of the rate of return (p).

 **Main Points**:

* Growth of the firm
* Sacrifice able
* Revenue maximization
* Principal
* Profit Maximization
* Agent
* Minimum Profit constraint
* Moral Hazard
* Unbounded Rationality
* Transaction Cost
* Bounded Rationality
* Capacity expansion
* Customer expansion
* Productive opportunity
* Diversification
* Steady-state growth
* Growth-in-Demand
* Growth-of -supply
* The cost-of-expansion

🖏 **Chapter Summary:**

The Neoclassical theory of the firm suggest that firms generate goods to a point where marginal cost equals marginal revenue, and use factors of production to the point where their marginal revenue product is equal to the MC incurred in employing the factors.

Because of the abstract nature of the neoclassical theory, a number of other theories have evolved that consider the firm as a more complex organisation where control and ownership are distinct, composed of diverse constituents. The roles of: transactions, technologies and contracts have all been focused upon, with varying degrees of intensity by different schools of thought. These theories are developed because some important questions are left unanswered in the neoclassical school theory of the firm, which led to the so-called modern theory of the firm which can be further classified as: Managerial theory, Principal-Agent Theory and Transactions Cost Theory.

Managerial theory focuses on the relationship between owners and managers and the possible deviation of objectives (but not necessarily deviation of interest) between managers and owners. As an integral part of the managerial theory, Baumol’s theory suggests that the primary objective of firms is sales/revenue maximization. Marris further developed the managerial theory by formalising the hypothesis that managerial control would lead to growth as an objective, showing that shareholders were a less important constraint on such firms than financial markets.

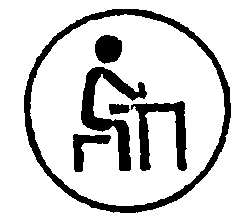
The Agency Theory on its own right examines situations in which there are two main actors, a principal who is usually the owner of an asset, and the agent who makes decisions, which affect the value of that asset, on behalf of the principal.

Unlike the neoclassical theory of the firm, the transaction theory of the firm recognizes that transaction costs are encountered universally because of the character of the individuals who make decisions. The imperfection of human agents calls for the costs of running an economy.

Moreover, we have reviewed various theories of growth of firms. These theories are concerned with maximizing the growth rate of the firm than with maximizing profits, although profits are important in helping to finance growth.

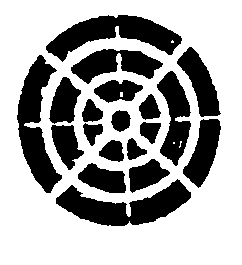
According to the life cycle theory of growth of a firm, young firms allow management-economies, making it easier to handle and transmit information regarding the companies' product or idea. If successful, the firm's growth rate accelerates, profit rises and managerial and shareholder objectives coincide. Growth may continue not only through expansion but also through diversification of new products. But gradually managerial diseconomies tend to become more important than managerial economies and hence growth slows down.

There are two restraints on the growth of the firm identified by Penrose: internal and external factors. When a firm has achieved the maximum rate of profitable growth by means of internal expansion and constrained by the managerial restraint, it may still grow further through external expansion of the firm or merger or acquisition. The Penrose model is important in that it pays attention to the internal operation of the firm; this has been the starting point of theories more concerned with explaining successful strategies.

 **Self Test Review Questions:**

1. Why is the influence of shareholders in the decision making process has diminished in the world?
2. What is the difference among profit maximizing level of output, revenue maximizing level of output and revenue maximizing level of output subject to profit constraint?
3. What causes the problems that exist between principal and agent?
4. When does the firm internalize transaction costs?
5. How does Downie's firm grow?
6. What role do managers play for growth according to Penrose’s theory?
7. State the main differences among the relationships of Maris model and how they are related?
8. Explain the role of diversification for the growth of the firm in Maris model.

# CHAPTER THREE: MARKET CONCENTRATION

 **Chapter Objectives:**

At the successful completion of this chapter students will be able to:

* Define market concentration;
* Highlight different theories of market concentration;
* Differentiate market concentration and structure;
* Identify different measures of concentration so that better measures of concentration can be singled out;
* Differentiate market concentration and market performance; and
* Find out the factors that determine market concentration.

**Dear distance students!** When do you see monopoly market structure and other market structures?

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Have you noticed the degree of concentration of firms in each market structure?

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Have you attempted the given questions?” Good! Here you have the chance to compare your trial with the following discussion.

## 3.1 Nature of Concentration

Market concentration or, more specifically, the degree of sellers concentration in the market, is an important element of market structure. Market concentration plays a dominant role in determining the behavior of a firm in the market. What is, then, market concentration? By market concentration we mean the situation when an industry or market is controlled by a small number of leading producers who are exclusively, or at least very largely engaged in that industry. Two variables are relevant in determining market concentration. These are: a) number of firms in the industry, and b) their relative size distribution.

Market concentration has its own influence on the ownership of the industry, concentration of decision-making power, concentration of firms in a particular location or region, etc. These elements of market concentration may have considerable impact on the market performance of firms such as profitability, price-cost margin, growth, technological progress and content.

## 3.2 Theory of Concentration

Market concentration is a feature of the imperfect competition where one or few firms dominate the entire industry. To understand the mechanism by which market concentration determines the economic behavior of such firms vis-à-vis that of others in the industry, we have to examine some theoretical models or deductions.

1. Let us assume that there are few large firms along with many smaller firms selling a homogeneous product at a uniform single price. This is called homogeneous oligopoly. The large firms will be having interdependence among themselves in the sense that variations in the price or supply of any one of them will have significant effect of the market supply, equilibrium market price and revenue of all other firms. This is certainly a situation of market concentration affecting the firms. This situation of market concentration can be presented mathematically as follows.

Assume total supply = Q units and market demand function be:

P = f(Q) = f(q1+q2+----------qi+--------qn) ……………………….. (1)

Where, P = product price, qi = output of ith firm, i = 1, - - - - n and 

The revenue function for the ith firm is given by:

RI =P.qi ………………………………………………………………. (2)

Differentiating equation (2) with respect of qi, the marginal revenue for the ith firm will be

 ……………………………………………….. (3)

Where,  = 1, since an increase in one unit of output by the firm means one unit increase in the total market supply.

Equation (3) can be written as:

 ………………………………………. (4)

Where,  is the market share of the ith firm. Assume that eQ is the market quantity elasticity of price. This is defined as the percentage change in market price with a marginal percentage change in the market quantity supplied, that is, eQ = …………………. (5)

Substituting equation (5) in equation (4), we get:

= P …………………………………. (6)

This equation shows that marginal revenue for the ith firm depends on product price (p), market share in output for the firm and quantity elasticity of price (eQ). If the firms are of uneven sizes then the average marginal revenue for the firm in the industry be given as

MR=  (MR1) + (MR2) + ---- (MRn)………………………………..…. (7)

Substituting MR1, MR2, …………… from equation (7) in equation (6), we get:

MR = P  or MR = P(1 + HeQ) …………………………………………. (8)

Where, = H is the Herfindahl Index of Concentration

This equation indicates that average marginal revenue depends on product price (p), concentration index (H) and the elasticity coefficient (eQ). If all n firms are of the same size then H = which tends to zero as n becomes greater and greater as in competitive situation. In this case, MR will be almost equal to price (p) i.e. MR = P(1+0.eQ) MR = P(1) = P

If there is only one firm, then, H= = 1. This is the case of monopoly, extreme of market concentration.

2. Lets now assume the situation when firms are selling differentiated products with different prices. If a large firm among few firms makes changes in the price and/or quantity of all other firms in the market. How the relative sizes of firms are determined? R.L. Bishop provides the following price and cross elasticity for this.

According to Bishop, when a firm makes changes in its price, all other prices remaining the same, the quantity of output supplied by the firm as well as by other firms will change. The responsiveness of changes in quantity of outputs as a result of the price change is given the price elasticity of demand for the firm and the cross elasticity of demand for the other firms.

Price elasticity of demand = ep = 

Cross price elasticity = eij =  ………………………………………… (9)

Where, j stands for the remaining n-1 firms:

When total market demand for the closely substituted goods is constant, an increase in the supply of any variety means a decrease in the total supply of all other varieties by the same magnitude. Thus, when the firm gets 5 percent increase in its sales, it means 5 percent reduction in the sales of all other firms. And if there are n-1 remaining firms so each one will get  percent decrease in the sales by one percent decrease in the price of the ith firm. This means eij = -. This shows the relationship between own elasticity and cross elasticity, as eij= - where n is the number of firms assumed to be equal in size.

If n is very large, eij will be very low tending towards zero. The impact on other firms becomes negligible. However, for a small group of firms i.e. concentrated industries, eij will be considerably high.

## 3.3 Measures of Concentration

In order to test empirically the behavioral hypotheses about the firms and industries, we need a measurement of market concentration. Various quantitative indexes have been suggested for this purpose which we are going to summarize in this section. Some of them are used to measure the monopoly power of firms and some for market concentration.

### 3.3.1 Concentration Ratio

The most popular and perhaps simplest index for measurement of market concentration or monopoly power is the use of the **concentration ratio**. This ratio indicates the share of the market or industry held by some of the largest firms. The market share of such firms may be taken either in production or sales or employment or any other magnitude of the market.

In symbolic form the concentration ratio is written as C=  m = 4, 8, 10, 12, - - 20

Where pi=market share of ith firm in descending order. The normal practice is to take the four-firm (m=4) concentration ratio but if the total number of firms operating in the market is large enough then one has to compute the 8-firm or even 20-firm concentration ratio. The higher the concentration ratio is, the greater the monopoly power or market concentration exists in the industry.

There are some limitations of this index. It does not take the entire concentration curve into account; it rather indicates market concentration of a point of the curve. Moreover, the concentration ratios depend on how the market is defined. A broad market would tend to reduce the computed concentration ratio where as a narrow one would usually have the opposite effect. Still, it may not be comparable with other industries or countries data. The other limitations are the ratios do not reflect the presence or absence of potential entry of firms. The ratios do not indicate any thing about the monopoly power of the individual firms in the market and ignore the role of imports in the domestic market.

In spite of the limitations, the ratios are widely used in industrial economics. They are simple to compute, really available for the manufacturing sectors and capable of measuring market concentration with a finer classification of industries. They are consistent with economic notion of monopoly theory.

### 3.3.2 The Hirschman-Herfindahl Index

It is the sum of the squares of the relative sizes (i.e. market shares) of the firms in the market, where the relative sizes are expressed as proportions of the total size of the market.

Herfindahl Index (H) = 

Where, pi =, qi is output of ith firm and Q is total output of all the firms in the market, and n is the total number of firms in the market. This index takes account of all firms in the market (i.e. industry). Their market shares are weighted by the market shares itself. The larger the firm, the more will be its weight in the index. The maximum value for index is one where only one firm occupies the whole market. This is the case of monopoly, that is, H= 

The index will have minimum value when the n firms in the market hold on identical share. This is equal to  that is H = H = 

H decreases as n increases. The index is simple to calculate. It takes account of all firms and their relative sizes. It is, therefore, popular in use and consistency with the theory of oligopoly because of its similarity to measures of monopoly power.

### 3.3.3 The Entropy Index

This index is the recent index of measuring market concentration. The formula is:

E =  log , 0≤ E≤ logn

Where, E is defined as ***Entropy Coefficient***, pi is the market share of the ith firm and n is the number of firms. This coefficient measures the degree of uncertainty faced by the firm in the market. For a monopoly firm (n = 1) the Entropy Coefficient takes the value of **zero** which means **no uncertainty** and ***maximum concentration***. Thus, we find opposite (inverse) relationship between Entropy Coefficient, E; and the degree of market concentration.

If there are n firms, all equal in size, then,

E=  x log n = log n

The entropy coefficient is a useful measure of market concentration in the sense that the population of the firms for which Entropy Coefficient is to be computed can be decomposed or disagreement into several groups, such as on their basis of sizes, regions, products and the classification of the industry, etc.

### 3.3.4. The Dispersion Method

These measures take into account the dispersion of market shares across the firms in the industry. One of these types of measures is the Lorenz Curve; which shows the variation in cumulative percentage distribution of market share (using sales or output or assets or employment, etc) as a variable. This is the cumulative percentage distribution of firms from smallest to largest firms in the market.

If the firms are equal in size Lorenz Curve would be a straight line as shown by 00’ diagonal. If there is inequality in the distribution of the market share the Lorenz Curve would then bend away from the diagonal towards x-axis.

% of shares (Cumulative By sales)

0'

100

Line of perfect equality

80

60

40

20

Lorenz Curve

% of firms (cumulative from smalls)

0 X

20 40 60 80 100

***Figure 3.1 The Lorenz Curve for Dispersion of the Firms and their Market Shares***

The coefficient, which is called **Lorenz Coefficient** or **Gini Coefficient**, is obtained by dividing the area bounded between the Lorenz Curve and the diagonal (00') i.e. the bounded area by the area of the triangle 00'X. This coefficient varies between 0 to 1.

The index has limitations as well as advantages. The first limitation is that sufficient and accurate data about the market share of every firm in market may not be available. The other limitation is that two entirely different Lorenz Curves may give the same Gini Coefficient. If there are two firms with 50% market share each or 1000 firms with 0.001% share each in the market, the result would be the same.

The advantage of the index is that it takes into account all firms in the industry unlike the concentration ratios which suffer from this limitation.

### 3.3.5. The Lerner Index

There are some other indexes which are mainly used to measure monopoly power of a firm but some of them can be applied to the market as a whole with little modification of the existing variables.

The Lerner index is a good example in this case.

I = 

We know that under perfect competition price is equal to marginal cost (P = MC). If there is a difference between the two, such that price>marginal cost, this is because of market imperfection or what we call as the monopoly power of the firm.

Marginal Revenue (MR) for the monopoly firm is MR = P (1+),

Where ep=price elasticity of demand. For profit maximization, we have the familiar condition MR = Mc  P(1 +) = P+P/*e*p = MC  = MC – P  = 

From these two equations we get the Lerner Index: I = = -. That is, the index is the inverse of price elasticity of demand. Remember, ep < 0, so, - > 0



The greater the market concentration, the greater will be the average Lerner Index for firms. Example, assume P = 100 and MC = 50, then:

I =  =  = . This indicates higher concentration.

Assume P = 100 and MC = 96, then:

I =  =  this indicates less concentration.

The common indexes of measuring market concentration are reviewed above. The question, however, is which is to be used. It is a matter of convenience to judgment which measure to use. It looks that the Herfindahl Index, the Concentration Ratios and the Lerner Indexes are comparatively better than other indexes for practical application.

## 3.4 The Determinants of Concentration

To what extent differences in entry conditions across industries explain differences in concentrations across them. Different studies have tested different variables as the determinants of the long-run level of concentration.

The two studies by Martin suggest that minimum efficient scale is a significant factor determining market concentration. According to this study an increase of 10 percentage points in minimum efficient scale would, on average, result in an increase of 3 percentage points in the four-firm seller concentration ratio. This is because it controls for differences across industries in the average number of plants per firm. It is to be expected that the concentration of sales will be larger, for any level of minimum efficient scale, the more plants the average firm operates. The concentration of an industry with two plants on average per firm is higher than that industry with the average number of plants per firm is one. The absolute capital requirements will have their greatest effect on entry conditions when the minimum efficient scale is large.

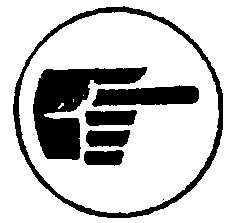
Moeller and Rogers found a fairly large and significant effect of all advertising on concentration. They were able to split advertising expenses into two components, one for television and the other for other media. The significant impact of advertising on concentration is seen to be entirely due to television advertising. This implies that a small entrant competing with national firms has to advertise nationally in order to market its product effectively.

A recent study by Kessides makes a careful attempt to distinguish procompetitive and anticompetitive effects of advertising. According to Kessides, advertising will discourage entry because its cost is sunk. The larger the advertising campaign necessary for entry, the greater the sunk investment is risked by a decision to enter. In this sense, advertising will discourage entry.

Advertising can also alter the probability that entry will be successful. The structure conduct performance school believes that entry is less likely to be successful in industries where advertising is important. According to this analysis, advertising encourages brand loyalty, increases minimum efficient scale and reduces the odds of successful entry.

Product differentiation can also discourage entry. This will occur if the effects of sales efforts endure overtime, if there are economies of scale in advertising and if the expense of advertising is a sunk cost.

The combination of impacted information and opportunism, under the uncertainty that characterizes real-world capital markets, means that established firms will enjoy an absolute cost advantage over potential entrants. Market concentration thus reflects a combination of technical factors and factors (such as cost fixity and product differentiation) that are under the control of established firms.

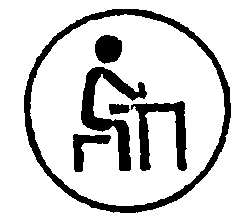
  **Main Points:**

* Indexes of Concentration
* Concentration Ratio
* Herfindahl Index
* Lerner Index
* Number of Firms
* Elasticity Coefficient
* Entropy Coefficient
* Lorenz Curve

🖏 **Chapter Summary:**

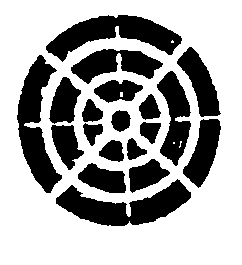
This unit is concerned with the exposition of the elementary theory of market concentration, its measurement and impact on certain market performance variables such as: price cost margins, profitability, growth of the firm and market, and technological progress. We have also seen that there is no consensus among economists as how to measure market concentration. That is, the measurement of concentration is full of controversies. Thus, it is difficult and misleading to conclude which index is best to measure market concentration. For continence, however, researchers use concentration ratio as well as Herfindahl index.

The empirical evidence about impacts of concentration on market performance and efficiency of the firms and industries is not yet clear. However, it got a universal criticism in the context of efficient utilisation of resources from the view point of social welfare. This has generated enough ground to regulate concentrated industries through public policies.

 **Self Test Review Questions:**

1. How do we measure market concentration?
2. State how market concentration is theoretically related to marginal revenue?
3. Using concentration ratio, indicate how concentration takes place?
4. Calculate concentration of 10 firms having the same market share using Herfindahl Index.
5. Determine Lenrer index when the firm charges price 255 and its marginal cost is 250. What is the degree of concentration?
6. Identify main determinants of concentration. Which of them is significant?
7. What is the effect of concentrated industry?

# Chapter Four: Industrial Location Analysis

 **Desired Chapter Objectives:**

At the successful completion of this chapter, students will get acquainted with:

* The meaning of industrial location analysis;
* The importance of industrial location in the performance of a firm;
* The determinants of industrial location; and
* The scientific approaches of analyzing industrial location.

Dear distance learners! Could you reason why different industries are located in the place where they are operating their business now?

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What are the factors that should be considered in selecting their location and are there some scientific approaches in the selection of industrial location?

-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

Have you triad? Supper! Now you can compare and contrast your answer with the discussion presented below.

## Introduction

Industrial location plays a vital role in the performance of firms. In Ethiopia, since we are far behind in infrastructural matters than other developing countries, the place where an industry is located is one of the major determinants of its performance. In this chapter we are going to discuss about the need, importance and approaches of industrial location analysis in detail.

In setting up a factory, a manufacturer has to take three interrelated decisions simultaneously:

* ***The scale of operation;***
* ***The technique to be adopted, which involves the selection of appropriate combinations of factors of production; and***
* ***The location of the factory.***

As you know very well the conventional theory of the firm provides the rules or norms for taking the first two types of decisions, but it ignores the third one completely. Now a days, especially in developing countries like ours needs a separate branch of economics bordering with the discipline of geography, which is known as Industrial Location or Location Analysis, which deals with the elements of locational or spatial decision-makings. In the coming discussion we will study this branch of economics in detail.

The task of decision-making about industrial location is not very simple. A manufacturer has to consider several technical, economic and institutional factors. Our first step in this chapter will be to identify such factors. Following this, we have to examine how individual firms react in locating their factories under different physical and economic circumstances. This implies a review of the theoretical approaches to industrial location analysis.

## Determinants of Industrial Location

Suppose a factory, with whose location analysis we are concerned, is a technical unit whose function is to convert a set of raw materials into some output with the help of men and machines, i.e., the factors of production. The raw materials and other inputs required by the factory for production will be rarely available at a place. The owners of the factory will have to procure them from different places which involve transportation and other procurement costs. Similarly, the output of the factory will be rarely sold at a single place. It has to be sent to different places which involve transportation and selling costs.

Given the spatial distribution of the inputs and outputs markets, the owners of the factory will have to take the decision about the place where the factory should be located. All potential locations for the factory will not be equally economical. Only one of them is to be chosen which will be the most economical.

How to make the choice for this?

A large number of factors have to be considered simultaneously while taking the decisions of industrial location, which exert pull and pressure on location of the factory in varying magnitudes include: ***Technical, Economic*** and ***Infrastructural Factors,*** and ***Other Factors*.**

* 1. **Technical Factors**

These are the physical factors which are more or less geographical in nature related to soil, raw materials, people, climate, etc. The important factors in this category are:

* Availability of land;
* Nature and quality of raw materials from land, e.g. forest products, agricultural inputs, minerals, and semi-finished products from existing industries;
* Geographic situation of the factory site in relation to the transport facilities by rail, road, water and air;
* Quantity and quality of human resources;
* Energy resources;
* Availability of water for drinking and industrial uses;
* Waste disposal facilities; and
* Climate.
  1. **Economic and Infrastructural Factors**

Input prices, taxes, markets, skills of labor forces, availability of adequate infra-structural facilities, finance, etc., constitute together the category of economic factors. The general list of factors for this would be as follows:

* Local markets;
* Situation in relation to export markets;
* Costs of land and buildings;
* Costs of infra-structural facilities like transport charges, power tariffs, water-rates, etc;
* Salaries and wages in relation to skills;
* Local cost of living;
* Taxes and subsidies;
* Cost and availability of finance;
* Structure of existing industries;
* Industrial relations and trade union activities around the proposed location sites;
* Demographic factors such as age and sex composition of local population;
* Literacy, professional skills, etc;
* Local medical facilities;
* Housing facilities;
* Cultural facilities such as schools, clubs and other recreation; and
* Communication facilities.

**c) Other Factors**

All other miscellaneous location factors may be listed in this category, viz;

1. Government policies towards location of new plants, and

2. Personal factors.

Most governments pursue the policies of rapid industrialization of their states. They provide several facilities for locating new plants in some places or regions. An entrepreneur has to evaluate the facilities given by the government very carefully before taking a decision on location of his/her factory.

Personal factors also play important roles in location decision, a manufacturer may prefer to locate his/her factory at his/her birth place-disregarding all economic factors. Again s/he may set up his/her factory close to a golf-club in order to keep up his/her interest of playing golf. Industrial location based on such personal factors will entirely be a matter of chance or which is called as historical accident.

Most of the factors, mentioned above are self-explanatory. In some industries firms are located near sources of major raw materials such as iron and steel, and pulp etc, while in other industries, they are located near markets. All factors together provide a spatial configuration which is to be analyzed very carefully for the optimum location of a factory. The choice of location will not be independent of the scale of production and the technique to be used for that. They are interrelated aspects which are to be decided altogether.

## Approaches to Industrial Location Analysis

There are several theoretical and applied approaches for location analysis based on the above-mentioned factors. In order to understand the precise relevance of the various location factors and the interactions among themselves, let us examine the leading theoretical approaches to industrial location analysis. In this regard significant contributions were made by geographers and economists; their approaches however were different.

The geographers, by and large, adopted intuitive conceptual base and case studies approach to arrive at some generalization about the industrial locational patterns.

The economists, on the other hand, followed a more formal, abstract or deductive approach for location analysis, an integration of these two diversified approaches led to develop some operational models for location studies.

1. **The Geographical Contributions**

The discipline geography examines the form of the earth, its physical features, natural and political divisions, climate, production, population, etc. Industries appearing on the earth's source do make some changes in its physical features and production patterns. Recognizing this fact, the geographers considered industrial location as part of their discipline and we are trying to present a brief review of a few selected works having some theoretical relevance. These are:

* + ***The Central Place Theory***
  + ***Renner's theory, and***
  + ***Rawstron's Principles***

1. ***The Central Place Theory***

This was the first systematic geographical theory of location. It was developed by Walter Christaller mainly to determine the number, size, and distribution of town and cities. Using certain simplified assumptions, Christaller was able to demonstrate graphically the spatial arrangements between hinterland and central places, mainly service centers.

In simplest terms, his theory proposed that towns with lowest level of specialization would be equally spaced and surrounded by hexagonally shaped hinterlands. Although, empirical testing of this theory is doubtful yet it is regarded as valuable theoretical contribution in urban geography. It has relevance for location of a manufacturing industry in a special case where production tends to be centralized and the market is really extended.

The major limitation of this theory is that it fails to encompass the development of belts of industrial concentration and the agglomerative tendencies which are common features of the modern industrial structures.

1. ***Renner's Theory***

Renner developed some general principles concerning industrial location. He classified industry into four categories viz:

* ***Extractive;***
* ***Reproductive;***
* ***Fabricative; and***
* ***Facilitative.***

To undertake anyone of these, six ingredients are required: raw material, market, labor and management, power, capital’ and transportation. Keeping in mind these ingredients, Renner postulated the law of location for fabricative (i.e. manufacturing) industry according to which any manufacturing industry tends to locate at a point which provides optimum access to its ingredients.

It will, therefore, locate near to:

***Raw Materials***, if it uses perishable or highly condensable raw substances, or

***Market,*** where the processing adds fragility, perishability, weight, or

***Bulk to the raw materials*** or where its products are subject to rapid changes in style, design, or technological character; or

***Power***, where the mechanical energy costs of processing are the chief items in the total cost; or

***labor***, where wages to skilled workers are large items in the total cost.

Apart from the above tendencies or laws, Renner gave a scheme for, industrial symbiosis. Three different types were mentioned for this:

***(a) Disjunctive symbiosis*** where different industries having no organic i.e. economic or technical connections among themselves, gain advantages by existing together at a particular place;

***(b) Conjunctive symbiosis*** where different industries with some organic connection among themselves (i.e. inter-connections) are located together; and

***(c) Co-industrialization*** which is an advance stage of the conjunctive symbiosis leading thereby to a huge industrial belt of interconnected industries.

Renner's approach on industrial location is quite realistic as it tries to bring together the major determinants. However, he has not been able to go into deep in analyzing the effects of spatial cost variation and industrial symbiosis, i.e. agglomeration on industrial location. He merely describes the tendencies of industrial location based on these factors.

***c. Rawstron's Principles***

Rawstron has developed his theory of industrial location in terms of three restrictions which impede the choice of location for a factory. The restrictions are the principles of location in his model. These are:

* ***Physical restriction;***
* ***Economic restriction; and***
* ***Technical restriction.***

The physical restriction will be operative when some raw materials mainly natural resources are to be produced or procured at the proposed site for the plant.

The economic restriction embodies the concept of spatial margins to profitability. The cost of production, i.e. the sum of expenditure on labor, materials, land, marketing and capital, varies from place to place resulting in a spatial variation in profitability for a firm. Unlike most authors, Rawstron does not identify transport as a separate cost item but takes it as a factor for spatial variation in the cost of other items and hence of profitability. The sum of costs arising solely from the choice of location is defined as the location cost by Rawstron. It plays crucial role in locational decision making.

The technical restriction examines the effect of the level of technology on location. The decision on the choice of technique for production is one of the three interrelated decisions as we have mentioned earlier. Location decision is one of them. So Rawstron's emphasis on technical restriction to location is consistent with this. Location decisions will be important with stable technology. In the case of changing technology, it may be difficult to link the choice of plant location with the choice of technology since the latter is uncertain. Generally, the effect of technological change is felt through some change in input requirement and hence on cost of production. Such change is taken into account by the second restriction in Rawstron's model. On the whole, Rawstron's contribution to the geographical studies on industrial location has been a pioneering one. The emphasis on cost-structure for industrial location makes his approach more important than the other geographical studies on the subject of industrial location based on minimum transport cost.

1. **The Economic Theories of Industrial Location**

Some of the pioneering works from some celebrated economists in the field of industrial location are discussed in this section, such as:

***a) Weber's Theory***

***b) Tord Plander's Theory of Market Area***

***c) Losch's Theory of Central Place***

1. **Weber's Theory**

Weber's main interest was to construct a general theory of location which could be applied to all industries at all times. In his theory he followed Launhardt's principle of industrial location based on minimum transport cost. For this purpose he has taken into account the general factors of location which were relevant to all industries. The factors considered by him were divided into two groups; those influencing inter-regional location of industries ***(i.e. regional factors)*** and those influencing intra-regional location (***i.e. agglomerating factors).***

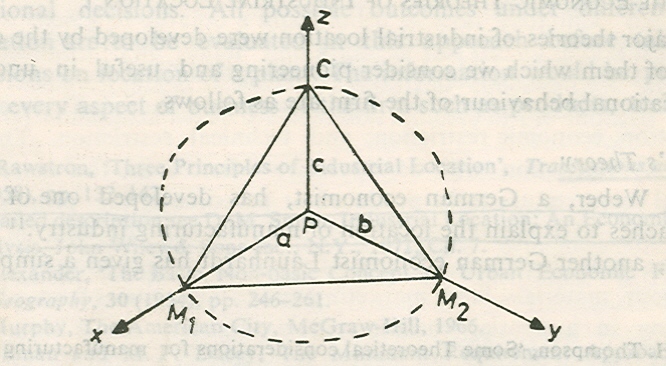
He found three general factors which vary regionally;

* ***Raw material costs;***
* ***Transport costs; and***
* ***Labor costs.***

The fluctuations in raw material costs were however included within transport costs. The approach followed by Weber was to explain industrial location in terms of transport cost first and then to examine the effects of changes in labor cost and agglomerative factors on it. He made the following simplifying ***assumptions*** for his analysis.

* + - The locations of raw materials including fuel are fixed;
    - Situation and size of consuming canters are given;
    - There are several fixed labor supply centers; labor is immobile and unlimited in supply at fixed wage rate;
    - The institutional factors like taxation, interest, insurance, etc., are insignificant locational factors;
    - The economic culture and political system are treated to be uniform and stable across the locations; and
    - On the whole Weber assumed perfect competition for his model.

Weber started his analysis with the proposition that a manufacturing unit tends to locate at the place where cost of transportation is minimum, i.e. the location where the number of ton-miles of raw materials and finished products to be moved per ton of product would be minimum. Weber used the locational triangle of Launhardt to find the place of minimum transport cost. He assumed a simple spatial situation in which there is only one consumption center (C) and two fixed supply centers (M1 and M2) for two most important raw materials.

****

***Figure 4.1 The Location Triangle***

There may be other consumption points and raw material supply centers but Weber did not consider all of them together. According to him, the least cost point will be located within the triangle CM1M2 such as the one shown by P. The three corner points of the triangle will be pulling the location point (P) towards themselves. The position of the point will depend on the balance of the pulls exercised by them. If the pull of anyone corner is greater than the sum of the pulls of the other corners, production will be located at the point or corner of origin of the dominant force. The force exerted by each corner on production point is in the form of ton-mile weight to be moved from that point (M1 and M2) and to the point (C). Let x and y be the requirements of materials M1 and M2, in tons per ton of output and let one unit of output, i.e. finished product be transported from point P to C. The distances of the corner points from the production point (P) are unknown. Let them be a, b and c between P and M1, M2, and C points respectively.

***The total ton-miles of transport per unit output would then be ax + by + c.*** This is to be minimized in order to find the position of point P, i.e. the location of production. The distances a, b and c, and hence the point P are easy to be found by applying the theorem of parallelogram of forces in geometry.

An industry may be material-oriented or market-oriented from location point of view. Weber used the 'material index' for identifying such nature of the industry.

***The material index (MI) is defined as:***

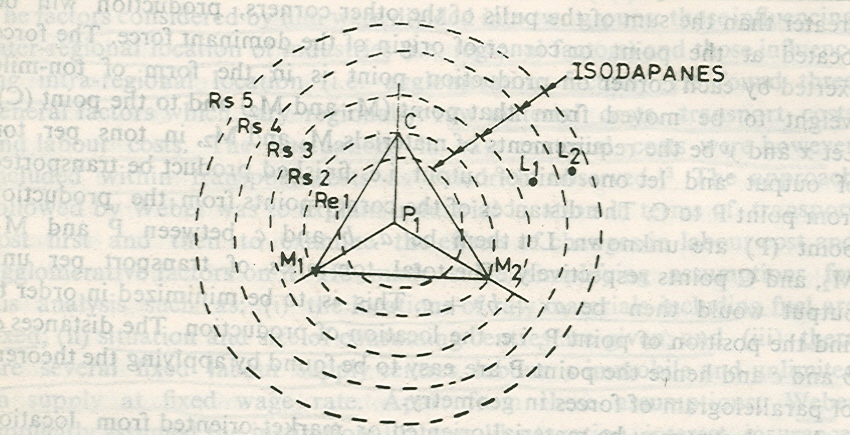
***MI= Weight of localized material / Weight of finished product***

Industries displaying a high material index i.e., MI > 1 are attracted towards the sources of raw materials such as iron and steel industry,

Industries displaying a material index less than one i.e., MI < 1 are attracted towards the place of consumption.

The assumption of a uniform transportation rate, was relaxed by Weber by converting the weight to be transported into an ideal weight which is defined as a product (or a function) of actual weight and the rate of transportation cost, for a material or finished product. Let t1, t2 and t3 be the transportation rates per ton-mile for material M1, M2 and finished product respectively, which is explained in the figure 4.1. The total transport cost per ton of finished product would be then equal to t1ax + t2by + t3c. The location of production point (P) within the triangle CM1M2 can be determined now by minimizing this cost instead of the sum of ton-miles as mentioned earlier.

According to Weber an industry will choose a cheap labor site if the labor cost saving is greater than the increment in transport cost at this site above the minimum possible transport cost. Weber used the isodapanes to explain the effect of labor cost on the least-transport-cost location of a plant. ***An isodapane is the locus of points having equal additional transport cost around the least-transport cost location***. There will be several isodapanes forming rings around the location fill different levels of incremental transport cost as shown in Fig. 4.2. Let P1 be the least-transport-cost location and L1 be a cheap labor site.



***Figure 4.2 Isodapanes and Equilibrium Location with Cheap Source of Labor***

Further, let us presume that there will be a saving of labor cost by Birr. 4 if plant is located at L1 instead of at P1. Should the location be shifted from P1 to L1? For illustration, the isodapanes around P1 are drawn for incremental transport cost of Birr 1, Birr 2, Birr 3, Birr 4 and Birr 5. Point L1 lies with the isodapane of Birr 4. It implies that it is economical to shift the location from P1 to L1. If labor source making a saving of Birr 4 in cost of production lie outside the isodapane of Birr 4, such as shown by L2, it would mean a loss in shifting the location from the least-transport-cost location P1 to the labor centre L2. In general, let d1 and d2 be the total ton-miles of transport services per ton of product at P1 and L1 sites respectively, and let W1 and W2 be the hourly wage rates at these two sites respectively, 'h' is the number of man-hours required to produce one ton of product and 't' is the cost of transportation per ton-mile. The cost of production and transport at site P1 would be (tdl +W1h) and at site L1 it would be (td2 + W2h).

The cheap labor site (L1) would be chosen if ***(td***1 ***+W***1***h) > (td***2 ***+ W***2***h).***

***Or (w***1***-w***2***)h > t(d***2 ***– d***1***)*** i.e., saving in labor cost exceeds the increment in transportation cost. For every level of saving in labor cost there will be a critical isodapane within which the cheap labor cost site must lie for economic viability from location point of view.

To measure the importance of labor as a location factor, Weber used the average cost of labor per unit weight of product as an index. The greater the labor cost index, the more will be the industry's susceptibility to move from the least transport-cost site. As an improvement over the simple labor cost index, Weber suggested to use the industry's coefficient of labor. This is defined as the labor cost per ton of location weight, where:

Location Weight = Weight of Material and Product/Weight Product

= Material Index (MI) + 1

A high coefficient of labor means a strong attraction to the cheap labor location.

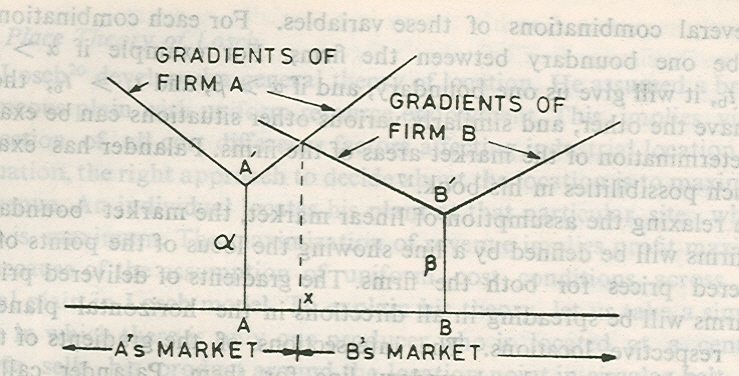
Weber's analysis of industrial location is indeed a pioneering one. It has paved the way for development of programming models for industrial location. Many economists have used this analysis as the basic framework for their location theory and empirical works. Even then this theory is not free from criticisms.

1. **The Market Area Theory of Tord Palander**

Tord Palander started his market area theory of industrial location analysis by posing two different but interrelated questions.

* Given the price and location of materials, and the situation of the market, where will production take place?
* Given the place of production, the competitive conditions, factory costs, and transportation rates, how does price affect the extent of the area in which a particular producer can sell his goods?

To demonstrate how the market boundary between firms can be determined, Palander took a simple case of two firms making the same product and selling that in a linear market, which is depicted in figure. 4.3, the firms are located at two different places, A and B, which are on a horizontal line which defines the market area of the firms. Let the prices charged by the firms at their locations be α and β respectively, which are shown by the vertical distance AA' for firm A and BB' for firm B. Consumers who are situated away from the location points of the firms will be paying higher prices for the product of the firms. The addition in price will be the average transportation cost, ta and tb for the product per unit distance for the two firms respectively. The price for the product at a point other than location would be α + ta da for firm A and β + tb db for firm B, da and db are the distances of the point from the location of firm A and firm B respectively. The transport cost is a function of distance for each firm. The gradients of total price paid by the consumer for the product are shown by the lines forming cones at points A' and B' for the two firms in Fig. 4.3**.**



***Figure 4.3 Determination of Market Boundary for Two Firms in a Linear Market***

The gradients are linear because of fixed transport rates for the product over distance. Just above point X, the gradient lines of firm A and firm B intersect. This implies that consumers would be paying the same price for the product of the firms. The point X defines the boundary between the market areas of the two firms.

Algebraically, at point X we have:

***α + ta (AX) = β + tb (BX)***

Since ***AX + XB =AB***, i.e. the distance between firms, we can therefore write:

***α + ta (AX) = β + tb (AB-AX)*** Or

***AX = [(β - α)/ (ta+tb)] + [(tb)/ (ta+tb)]. AB***

***Example***

Let α = Birr.100, β = Birr. 90, ta = ta = Birr. 2 and AB = 100 km.

So, AX = [(90 – 100) / (2+ 2)] + [2/ (2+2)] [100] = -2.50 + 50 = 48.5 km.

Firm A can sell only up to 48.50 kilometers toward firm B. The rest of the distance between- them, i.e. 51.50 kilometers defines the market area of firm B. The determinants of market boundary or area for the firm are prices at the locations, transport rates, and the distance between the firms. Given the location of the firms and hence the distance between them, the boundary of their market areas will depend on the relative magnitudes of the location price (α and β) and the transport rates (ta and tb). There may be several combinations of these variables. For each combination there will be one boundary between the firms. For example if α > β and ta = tb, it will give us one boundary, and if α > β and ta > tb, then we will have the other, and similarly various other situations can be examined for determination of the market areas of the firms.

On relaxing the assumption of linear market, the market boundary for the firms will be defined by a line showing the locus of the points of equal delivered prices for both of the firms.

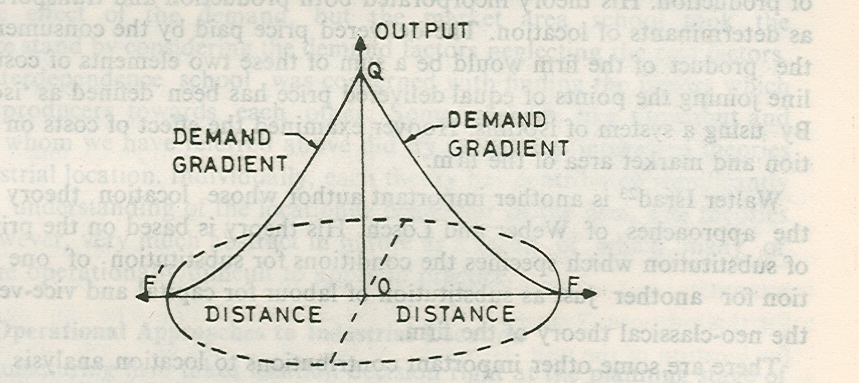
The gradients of delivered prices for the firms will be spreading in all directions in the horizontal plane from their respective locations. The intersections of the gradients of the two firms will give the market boundary line for them. Palander calls such boundary line as 'isotante'. The shape and situation of the isotante depend on the relative magnitudes of location prices and transport rates for the firm.

The market area of a firm will be extended to greater distance if its factory price and transport cost are lower or decline. The size of market area will influence the profit of the firm. Given the production cost and the rate of profit per unit output, the larger the market area the more will be the total sales and hence total profits of the firm. The market area and hence sales and total profits of anyone firm will be influenced by the locational decisions and other actions of the competing firms.

Palander's analysis is not a mere extension of the Weber's work. He made valuable contribution to locational analysis by adding the market area dimension to it. He did not accept the agglomeration analysis of Weber but emphasized much on dynamic aspects of locational factors.

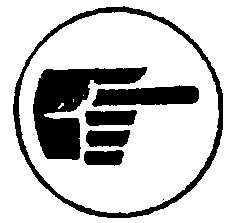
1. **Central Place Theory of Losch**

The advocator of central place theory August Losch started his analysis on a broad homogeneous plain with uniform resource endowment. This rejects all cost difference factors affecting industrial location. In such situation, the right approach to decide about the location is to maximize total revenue. ***An individual locates his plant at that particular site, where revenue is maximum***. The maximization of revenue implies profit maximization because of the assumption of uniform cost conditions across the locational plain in Losch model. To explain his theory, let us take a simple situation in which there is only one producer who is located at a central place. S/he sells his/her product around the location point in circular belt, the extent of which depends on the economies of scale accruing to the producer and the transportation, i.e. distribution cost of the product. The demand for the product falls with distance. The maximum extent of the market area for the producer is given by the distance when demand falls to zero because of high price for the product. This is shown by OF in Fig. 4.4.

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***Figure 4.4 Market Area of Firm (Losch Model)***

The circle with OF as radius, defines the market area for the producer. O is the location of the producer at which OQ is the demand for his product. The producer being only one in the market makes profits. This attracts other competitors in the industry. They put up their plants in the area. There is no restriction for that. The resources are available. The entry of new producers gradually reduces the market area of the existing firms. Their markets will not continue to be circular but somehow irregular in shape. However, when distribution of the firms in the plain is uniform the market area for each one of them will be hexagonal. The profits for each firm will be minimal at this stage. Each industry will have a system of hexagons of its own. The superimposition of hexagons of different industries produces a common production centre surrounded by the sub-centers of productions in orderly sequence. Losch's theory is a general spatial equilibrium theory, and it is not giving anything about the factors which determine the location of individual firms. The rejection of cost differences as locational factors is a major weakness of Losch's theory.

  **Main Points**

* Indexes of Concentration
* Concentration Ratio
* Herfindahl Index
* Lerner Index
* Number of Firms
* Elasticity Coefficient
* Entropy Coefficient
* Lorenz Curve

🖏 **Chapter Summary:**

In setting up a factory, a manufacturer has to consider the scale of operation, the technique to be adopted, which involves the selection of appropriate combinations of factors of production and the location of the factory.

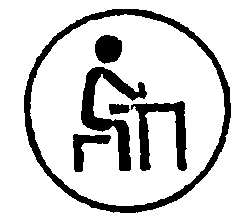
***Technical, economic*** and ***infrastructural factors*** are the basic determinant factors for choosing industrial location among others.

Geographers and economists were significant contributors for industrial location analysis, even though their approaches are different.

The first systematic geographical theory of location: central place theory focuses mainly to determine the number, size, and distribution of town and cities. On the other hand Renner's theory has developed some general principles concerning industrial location which classified industry into four categories viz: extractive, reproductive, fabricative and facilitative. All of these general principles argue to locate industries near a bulk of raw materials, market, power or labor. Moreover, Rawstron's principles were focused to solve three restrictions: physical restrictions, economic restrictions and technical restrictions which impede the choice of location for a factory. These restrictions are the principles of location analysis in this model.

In the economic front; Weber's theory, Tord Plander's theory of market area and Losch's theory of central place are the basic industrial location analysis models.

According to Weber's theory raw material costs, transport costs, and labor costs are the major determinant factors in the analysis and set up of location of industries. To the contrary Tord Plander's theory of market area focuses on transportation costs exclusively in the determination of market boundary for two firms in a linear market. Moreover, the Losch's central place theory rejects all cost difference factors affecting industrial location but argue that an individual locates her/his plant at a particular site, where revenue is maximum as the objective of firms is to maximize revenue and hence profit.

 **Self Test Review Questions:**

Attempt the following questions. Write your answer in your own words. Do not directly copy from the module.

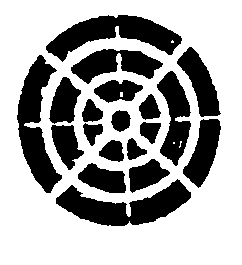
1. Why Dashen Cement Factory selected its location near Dejen Town in the Abay Gorge? Is it only because of the availability of raw materials? Give your answer based on the theoretical knowledge you have acquainted from this chapter.

2. Explain the different factors to be considered while taking the decision of location for a factory or an industry.

3. Discuss briefly the different approaches to industrial location. In your opinion which approach is more important. Why?

4. Explain all the methods coming under economic approaches of industrial location. Compare the merits of each method with Weber's Theory.

# Chapter Five: Analysis of Firm Structure

**Desired Chapter Objectives:**

At the successful completion of this chapter students will be able to:

* Describe market performance;
* Describe excess return on sales;
* Explain price-cost margins;
* Describe measure of market condensation; and
* Describe industry concentration.

**Dear distance learners!** What do you think are the main differences between economic profits and accounting profits? Let you try please. --------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

What do you think about the reason behind the growth of the firm?

------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

Have you tried? Supper! Now you can compare and contrast your answer with the discussion presented below.

Firms have been viewed as single product entities which, given their immediate or perspective economic environment, seek via their decisions on prices, advertising and capital commitments to maximize profits. If firms have the discretion to modify their competitive position then what limits their power, and what are the ultimate determinants, both internal & external, of their performance? To answer this question let us see the characteristics of firms or companies.

## Organization, Structure, Ownership and Control of Firms

### 5.1.1 Organization

An organization is coalition. It is a coalition of individuals, some of them organized into sub-coalitions. In a business organization, the coalition of members includes managers, workers, stockholders, suppliers, customers, lawyers, tax collectors, regulatory agencies, etc. In the governmental organizations the members include administrators, workers, appointive officials, elective officials, legislators, judges, clienteles, interest group leaders, etc. In the voluntary charitable organization there are paid functionaries, volunteers, donors, donees, etc.

However, the idea of an organizational goal and the conception of an organization as a coalition are implicitly contradictory. Basic to the idea of coalition is the expectation that the individual participates in the organization may have substantially different preference orderings (i.e. individual goals). That is to say, any theory of organizational goals must deal successfully with the obvious potential for internal goal conflict inherent in a coalition of diverse individuals and groups.

### 5.1.2 Structure

By structure of any complex body we mean the pattern or form or manner in which the constituent parts of that body are arranged together. Taking the market as a complex body, we can examine how its different constituents i.e. sellers and buyers, are linked together. This can be specified in terms of the organizational characteristics which determine the relations such as, ***sellers in the market to each other***, ***buyers in the market to each other***, ***the sellers to the buyers*** and ***sellers established in the market to the new potential firms which might enter the market***. Each of these relationships of market structure can be considered as follows.

1. **The degree of seller concentration**- this is the number and size distribution of firms producing a particular commodity or types of commodities in the market.
2. **The degree of buyer concentration**- this shows the number and size distribution of buyers for the commodities in the market.
3. **The degree of product differentiation**- this shows the difference in the products of firms in the market. This indicates how sellers interact with buyers.
4. **The condition of entry to the market**- this represents the relative ease with which new firms can join the category of sellers (i.e. firms) in the market.

Each of these four different dimensions or features of the market structure will be important for the behavior of the firms which in turn, will be affecting their performances as well as the performance of the industry as a whole.

Regarding the number of sellers (degree of seller concentration), if there is only one firm, then, we get the form of monopoly market. If there are two then, duopoly; if they are few oligopoly and, finally, if they are many, then the firm encounters strong competition. In each case, the process of output and price determination will be different.

Similarly, the buyer's concentration in the market (e.g. monopsony) will have considerable impact on the actions of the sellers and their performance. Product differentiation and the entry conditions in the market play their own roles in the real life situation.

Market structure is a multi-dimensional concept. So, it is not possible to measure it through a single variable. According to Bain, there are three elements of market structure as the main determinants of the nature of entry conditions: **economies of scale**, **product** **differentiation** and **absolute cost advantages** of the existing firms.

### 5.1.3 Ownership and Control of Firms

The traditional theory of the firm viewed control as being exercised solely by the individual owner, who was the sole claimant on profitability. Starting in the 1930s, however, the management school argued that ownership through the holding of shares had become highly dispersed, particularly in large companies; that salaried managers who controlled firms operations held few shares. Because of this type of ownership of shares, they were only loosely motivated or constrained by owners to pursue profit maximization.

Owner shareholders Board of directors Top management

Majority of the firms are share companies. With regard to the extent of managerial shareholding, separation of ownership and control in large companies is typical. In this case, ownership is widely dispersed, and management control is therefore, largely independent of the owners.

Owner's, in order to impose their own views and ensure behaviors consistent with them, would need first to know in some detail the performance of the company, the extent to which it was below the maximum possible, and the extent to which management was possible for this. Second, they would need to know whether the existing management could rectify the problem, and to compare this potential with the extent to which new management could improve upon the situation. This would entail assessing not only current performance was in fact merely a prerequisite for better long-term performance e.g. as a result of entry costs, long-term research and development costs, carrying out defensive investment, etc.

Third, any shareholder seeking to remove a management board member would need to mount and win a vote of shareholders. This would often be expensive both in time and money with no great certainty of victory. All these costs, financial and otherwise, are generally referred to as ***enforcement costs***.

For all these reasons such shareholdings may create a much tighter constraint on management than an equivalently sized shareholding held by an individual. All these types of considerations suggest significantly less scope for managerial discretion than was previously thought. Given substantial dispersion of shareholdings, this frequently enables the board to regard itself as the group most likely to win a shareholder vote. Besides this, board does not have to rely purely on their own shareholding. Normally, mangers will make arrangements whereby any shareholder can place his voting rights at the disposal of a proxy voter amenable to the views of management.

To conclude, separation of ownership and control remains significant characteristic of large modern corporations. The effect of it depends on the extent to which managers' objectives differ from those of owners, and on the effectiveness of the constraints if any, on manages' decision-taking discretions.

## Goals and Objectives of Firms

**Goals of Firms**

We have seen the ***potential conflict*** between the **shareholders** who own the company and the **managers** who direct it. In addition to this, there is potential conflict of interests between different groups of managers charged with responsibilities for different parts and functions within the firm. The basis for this argument is that a firm is a *coalition of individuals*, some organized into groups and sub-coalitions. In a firm these include ***managers,*** ***workers, shareholders, suppliers, customers***, etc.

Explicitly or implicitly, a process of bargaining occurs continuously. This results in side-payments such as salaries, commitments to particular lines of business or specific policies, etc- in order to induce others to join a particular coalition. The bargaining process, however, does not eliminate all conflict within the managerial group.

There are five main aims that well represent the organizational goals of the firm.

1. **Production goal**- The production department is largely concerned with matters of output and employment. The desire primarily of the production side for stable employment, ease of scheduling, maintenance of adequate cost performance, and growth are all largely met by requiring that production does not fluctuate too much or fall below an acceptable level. Even if sales are poor the production department will want an increase in inventories rather than a cut in output.
2. **Inventory goal**- The desire primarily of the sales staff and their customers for there to be at all times a complete and convenient stock of inventory is largely met by keeping the level of inventory above a certain minimum figure. The holding of inventories pleases both sales and production department, but conflicts with the interests of the financial managers who regard the holding of excessive inventories as unprofitable since it ties up valuable working capital.
3. **Sales goal**- The importance of sales for the stability and survival of the firm makes it an important goal for all firm members but practically for the sales staff, whose effectiveness is judged partly by their success in maintaining and expanding sales.
4. **Market Share goal**- This may be an alternative to the sales goal, particularly if market growth is important. The management may adhere to it more because of the comparative performance measure element contained in it. This reflects an interest in the firm's performance because no better index of efficiency exists. Furthermore, it is possible to make inter firm profit comparisons.
5. **Profit goal**- Investment, dividends, and further resources for sub-units of the firm all require adequate profit. In addition, profit is an important performance measure for top management.

It is clear that these goals may conflict irreconcilably when it comes to choosing price and output levels. Sales goals may require a lower price, but the profit goal a higher one. Both sales and production goals may favor high inventories, profits a lower level, and so on. The question is how are these conflicts solved? Cyert and March identify four mechanisms to solve these conflicts.

* 1. Given bounded rationality, objectives are stated in terms of ***satisfying*** *or* ***aspiration*** levels. At any one time only one objective will be operative in the sense of needing attention because it is not currently being achieved.
  2. As this implies, ***decision taking is sequential***. Performing different objectives at different times reduces substantially the perceived conflict between different objectives.
  3. ***Organizational slack exists***. This is the difference between the resources available and those necessary to meet the current demands of members of the coalition of the firm. If performance becomes inadequate in terms of a particular objective, it is generally possible for organizations to increase efficiency by utilizing slack resources.
  4. The use of ***standard operating procedures***. Many decisions are standardized and then operated by the department responsible for them. Acceptance of these standard procedures then avoids much latent conflict.

**Objectives of Firms**

What are the main objectives that direct the decisions of firms, and how in practice do firms organize themselves to deal with the problems identified? The last twenty years has seen a substantial amount of analysis based on the notion that firms should not be regarded as profit maximizers. To say that a firm is a profit-maximizer is, strictly speaking, absurd. As we have noted, firms do not have motives: only people do. A firm comprises many people, each with a set of complex and largely unknown motives. Its behavior depends on a whole host of influences, personal relationships, perceptions, and so on.

Basic profit maximizing objective theory implies that profit is the excess of revenue over all costs, including opportunity cost and taxes in a static worked in which either all factors of production are variable ( long-term) or only some are variable (short-term). As such it may clash with maximization in the long-term of the rate of return on capital valued at historic cost- an objective in consistent with the concept of rational economic man. In addition, it is not directly related to accounting profit which ignores imputed opportunity cost, raising the possibility that "true" profit is not maximized and/or regularly negative.

The most frequently argued view is that managerial motives in capitalist firms result in a desire for large size. A desire for size naturally implies a desire for growth, particularly if transfer of executives between companies is fairly limited. But growth of firms requires growth of available funds, of capital, of employment, and of demand, and their appropriate integration overtime.

While *size* and *growth* are two most straightforward alternatives to profit as the presumed objectives of managers, they are not the only ones.

## Legal Forms of Business

The organizational form (legal forms of the business) may influence the choice of the goal or motive to be pursued by the firm. For example, a small firm run by a sole proprietor may intend to pursue the motive of profit maximization but for a large corporation this objective may not have any validity in view of the separation of the management from the ownership. The managers in this situation may be interested in maximizing their own utility rather than the profits of the firm. Thus, it is the goal to be pursued that determines the choice of the legal form for a firm.

### 5.3.1 Types of Organizational Forms

In industrial economics, a business firm can be identified based on the type of business it is doing, its size, the pattern of ownership and so on. The pattern of ownership is commonly used to describe the type of organizational form for the firm. According to this, we can classify firms as proprietorship, partnership and corporation. This kind of classification is a largely recognized institutional pattern within which business firms operate all over the world. This classification enables us to understand the possibility of separation of the management from the ownership, as is the phenomenon in the corporate sector now a days. This helps one to understand the decision-making process in reality.

The legal organizational pattern of the firm based on their ownership is as follows.

Government companies

Business

Business

Public sector

Joint Sector

Private Sector

Government companies

Statutory corporations

Departmental organizations

Collective ownership

Individual ownership

Joint stock companies

Cooperatives

Partnership

Private Limited companied

Public limited companies

***Figure 5.1 Different Organizational Forms of Firms***

All firms engaged in business can be first classified into three categories: i). private sector ii) Public sector and iii) Joint sector. In private sector, ownership is exclusively in the hands of the private individuals, where as in the public sector, the government owns the firm. In the joint sector, the government, the private entrepreneur and the public together share the ownership, management and control of the firm.

* + - 1. **Private Sector**

1. ***Sole proprietorship***-This is the simplest kind of business organization which is owned and controlled by a single individual. Alternatively, it is called **one-man business**. The sole proprietor may have any number of persons working for him/her but they will be just paid employees or family members having no share in the ownership of the business.

In terms of numbers, this is the most common form of business organization and is found mainly in the retail trade, service industries, cottage and small industries and the professions. This form of ownership has its own advantages and disadvantages.

**Advantages of sole proprietorship**

1. It is easy to establish.
2. Incentive to earn more by exerting one's own effort.
3. Independence of control over business.
4. Decision-making is very fast.
5. Secret of business can be maintained.
6. Can bring efficiency because of direct contact to the owner.
7. Flexible operation.
8. Equal opportunity to everyone to use ones talents.

**Disadvantages of Sole Proprietorship**

1. There may be limitation both in resource mobilization and management.
2. Sole proprietor liable for all kinds of risks (unlimited liability).
3. The life of the firm is uncertain. After the death of the proprietor there is no guarantee whether the business will continue or not.
4. All qualities required for success in business are rarely found in one man.

Sole proprietorship is suitable when the markets are limited and highly localized and the commodity or service is provided according to individual requirements.

1. ***Partnership***: In this form of ownership the firm is owned or managed or controlled jointly by more than one person. All of them agree to share the profits of the firm. In fact, the sharing of profits is the basis for defining partnership. It is not necessary for the partners to own the capital jointly or to manage the firm jointly. The contribution of the partners in running the business need not be the same. The minimum number of partners is two and the upper limit is twenty in most cases. Partnership is created by mutual consent and voluntary agreement.

The liability of the partners in the business is unlimited. The limitation of the liability through mutual agreement is not possible legally under partnership. The head of the family manages the business, while other members help him/her. Profits are shared by all members of the family according to their share or contribution in the business. The family members are free to leave the joint business whenever they like to do so. This type of business continues, since after the death of the head of family new head will take over to keep the business going. Joint ownership of the property is the basis for such organizations. The liability of the numbers of family except the head will be limited.

There are many types of partnership depending upon their specific role in business. There are ***active partners*** who bring in capital and take active interest in the conduct of the business. There are ***sleeping partners*** who bring in capital, share profit gains but do not take active interest in the conduct of the business. There is a category of interest which is called ***secret partners*** being unknown to the public. There are ***nominal partners*** who just lend their names and credit to the firm without contributing any capital or without any active interest in the business. In the eyes of the law such partners are equally responsible for the liabilities of the firm. A person who is not a partner actually, but acts as a partner is called ***quasi-partner*** or ***estoppel-partner***. Such a partner does not share any personal liability of the firm.

The advantages of the partnership are several such as, ease of formation, large financial resources, combined managerial abilities and judgment, flexibility and elasticity in operation, combination of management and ownership, mutual cooperation, protection of minority (in the sense of partnership) interests secrecy in business and adequate credit availability because of unlimited liabilities of the partners.

The disadvantages are: Unlimited liability of each partner, risks from dishonest co-partners, uncertain life, lesser public confidence, non-transferability or restricted transferability of the partners' interest in the business, and liability of the partner even after his/her retirement from the firm.

Like a sole-proprietorship the main motive of partnerships firm will be profit maximization. This is clear since the very basis of defining partnership is the sharing of the profit. Survival in business may be looked upon as an alternative goal for such a firm.

1. ***Joint-stock company or corporation***- This is the most important form of organization in the modern world. A joint-stock company is a legal entity with a perpetual succession and a common seal. It is a voluntary association of certain persons formed to carry out a particular purpose in common. It is just like an artificial man created by the law whose life is independent of the lives of the members of its association.

The essential characteristics of a joint-stock company are the following.

1. ***Legal Entity***:- A joint-stock company is created by law. It is a legal entity distinct and independent of the existence of its members who own it. It is the official seal and signatures that matter in the dealings of a joint-stock company.
2. ***Corporate Existence***:- According to the law, the mode of incorporation and dissolution of the company and the rights of the members to transfer shares guarantee the existence of the company quite independent of the life & tenure of the members. It, therefore, enjoys perpetual succession.
3. ***Corporate Finance***:- A joint-stock company raises its basic capital for investment in the form of shares. The shares are purchased by the public who become owners of the company.
4. ***Centralized and Delegated Management***:- A joint-stock company can have a large number of shareholders. All of them cannot take active part in the management of the company. Actual control and management is, therefore, delegated by the shareholders to their elected representatives called directors.
5. ***Transferability of Shares***:- The shares of a joint-stock company are freely transferable. They can be sold and purchased just like a commodity, in the share or stock-exchange market.
6. ***Large Number of Members***:- The number of shareholders of a joint-stock company is quite large except in one type where it is restricted to maximum of 50.
7. ***Limited Liability***:- The responsibility or liability of the members of a joint-stock company is limited to the extent of the nominal value of the shares held by them. The liability of the company as a whole of course remains unlimited.
8. ***Statutory Regulations and Controls***:- The law regulates the company or corporation for the benefit of the public in general
9. ***Publicity and Compliance to Various Legal Formalities***:- A joint stock company has to file a set of documents with the Registrar of companies and publish them for the information of the public such as Memorandum and Articles of Association, Balance Sheet and Profit Loss Accounts and Annual Reports.

All companies limited by shares may be classified, as 'private limited' company and as "public limited" company. A private limited company is one which by its Articles of Association:

* 1. Restricts the right of the members to transfer shares,
  2. Limits the number of members to fifty excluding past or present employees of the company, and
  3. Prohibits any invitation to the public to subscribe for its shares or debentures. Minimum number of shareholders for a private limited company is two.

The public limited company is one which has no restrictions as mentioned in the case of a private limited company. It will have a minimum of seven shareholders and the upper limit is open for any number.

There are advantages and disadvantages of the joint-stock companies. Advantages of the joint-stock company are:

1. Limited liability which reduces the risks in business from individual investor's point of view.
2. Perpetual succession guarantees continuity of business for longer period.
3. Transferability of shares which secures freedom to withdraw from the business and to increase wealth through shares.
4. Financial strength because of the contribution of shares.
5. Centralized team, management through board of directors ensures better decision-making.
6. The scope for expansion improves due to better financial and managerial resources.
7. Better confidence from the creditors as a result of a better position of the company.

The disadvantages of joint-stock company are:

1. Too much legal formalities right from the time of formation as well as its day-to-day workings.
2. Separation between ownership and management. This is a serious limitation.
3. Few shareholders having greater number of shares at their credit may not care about minority shareholders.
4. Fraud is possible because of lack of control.
5. Speculation in the stock exchange market about the company may spoil its good will in the goods market.
6. Delays in the decision-making.

If we weigh the advantages and disadvantages of the joint-stock companies the balance tilts towards the advantages; that is why this system is gaining more and more popularity.

* 1. **Cooperative Society:-** A cooperative society is a form where people associate voluntarily for the furtherance of their common economic interest. Some of the cooperatives societies are: consumers' cooperatives societies, producers' cooperatives societies, marketing cooperatives, cooperative credit societies, cooperative farming societies, and housing cooperatives.

The basic motive of such societies is to provide maximum service to its members and not to make profit. There may be some surplus in profit form coming from the business but that is a secondary thing.

* + - 1. **Public Sector Companies**

The public sector plays a vital role in the socialistic and mixed economics mainly for three reasons:

* 1. To gain control of the commanding heights of the economy,
  2. To promote critical development in terms of social gains or strategic values rather than primarily on consideration of profits, and
  3. To provide commercial surplus with which to finance the economic development of the country. Some of the important types of government companies are the following:

1. ***Departmental Organizations***- (like Post, Telecommunications, Railways, Broadcasting, and Defense undertakings in the country).
2. ***Public Corporations***- these companies are established under the specific Acts of the parliament or state Legislature. They are called statutory corporations such as Airlines, Insurance Corporation, etc.
3. ***Government Companies***- A government company is any company in which not less than fifty one percent of the share capital is owned by the government. It is organized under the existing provision of the companies Act like any other joint-stock company.

**5.3.1.3 Joint-Sector (Venture)**

The concept of joint sector implies the participation of both the government and the private sector in the business. Under this organization, a firm is owned and run jointly by the government and a private entrepreneur. The public sector and the private one work together under the same roof and put a mutual check on each other.

## Structure Conduct Performance

Theories on competitive and non competitive markets hold that the less competition a firm faces, the greater its market power; the ability to set price above marginal cost. Thus, market power (and hence price and profits) should be higher in industries with substantial entry barriers that reduce actual and potential competition. Economists conduct empirical investigations to test two of the implications of these theories:

1. How much market power do particular firms (industries) exercise?
2. What are the major factors that determine market power?

For many decades, economists have conducted structure-conduct–performance (SCP) studies that concentrate on the second question, which concerns the relationship between market performance and market structure. Market performance is the success of a market in producing benefits for consumers (for example, a market is performing well if prices are near the marginal cost of production). Market structure consists of those factors that determine the competitiveness of a market. Market structure affects market performance through the conduct or behavior of firms.

The structure-conduct-performance (SCP) paradigm, introduced in the late 1930s and 1940s, searches for a link between various elements of market structure and some measure of performance. The traditional SCP approach hypothesized that certain elements of market structure increase the likelihood of collusive behavior and that collusive behavior results in higher prices and profits. Because, collusive behavior is not directly observable, however, SCP studies use evidence on the relationship between performance and various characteristics of market structure to make inferences about market power. If, for example, a researcher finds that higher concentration is associated with higher industry profits, the SCP explanation is that firms in highly concentrated industries are better able to collude, leading to higher prices and profits and allocative inefficiency.

## Measurement of Market Performance and Market Structure

### Measurement of Market Performance

Market power permits a firm to raise price above the competitive level. This suggests that a good way to measure market power might be to look directly at prices. To make comparisons across industries or even across firms that produce a variety of products, a common denominator is necessary. One possible common denominator is cost. The Lerner index, is theoretically operating because it directly measures the increase of price above marginal cost.

The Lerner index, however, is difficult to estimate because data are lacking on firm's marginal costs. Four different measures have been used as a proxy for the learner index in structure –conduct–performance (SCP) studies: excess return on sales, profit rate, price-cost margin, and Tobin's q.

**Excess Return on Sales**

Excess return on sales is the ratio of economic profits to sales revenue. Assuming that firms are in long-run equilibrium and are operating in the range of their production functions with constant returns to scale, the excess profit-rate on sales  will on average across all products produced by the firm, equal the learner index. To see this, begin with the learner index and recognize that if returns to scale are constant, MC = AC. Making this substitution and multiplying the index by yields. Because, AC =, this is equal to , which is an economic profits over sales!

Despite its theoretical appeal, few studies have used the excess profit rate on sales to measure performance. Difficulty arises in the calculation of economic or excess profits, which can be broken down in to sales revenue minus non capital costs minus depreciation minus annual capital costs. Theoretically, annual capital costs equal the total capital stock multiplied by the competitive cost per unit of capital, that is, the annual rental fees of capital were rented in a competitive market. Accounting data, however, do not report the competitive rate of return on capital, to measure the excess profit rate of return; a researcher must make a judgment about what the appropriate competitive rate of return is.

**Profit Rate**

Many researchers use accounting profits as a measure of relative performance. These data are readily available from standard secures and do not require judgment about the competitive rate of return. Earning positive economic profits is equivalent to earning a rate of return that is greater than the competitive rate of return.

If investment in a competitive industry yields a 6 percent rate of return, then 9 percent is an excess rate of return, and we can conclude, that the firm is earning positive economic profits. Most SCP studies have used the rate of return on stockholders' equity after tax to measure profitability. This is calculated as  where  is profit. T is the tax on profits, and E is stock holders' equity. This measure is attractive because it corresponds with what individual investors are trying to maximize. Also, competitive industries with the same risk will have the same rate of return on equity in the long-run.

A disadvantage of the rate of return on equity, however, is its sensitivity to variations in the debt/equity ratios across firms, issuing both debt (banks) and equity (stocks) results in two groups having claims on the assets of the firm. With debt holders getting paid before stock holders if a firm get into financial trouble. The risk to stock holders of not getting paid increases as the debt/equity ratio increases. To compensate for the higher risk, stockholders will require a higher rate of return from a firm with a high ratio of debt to equity than from a firm with a low debt/equity ratio.

To reduce the problems associated with variations in the debt/equity ratio, some researchers use the rate of return on assets after tax. This is calculated as. Where  and T are as defined above, and I is interest payments to debt holders, and A is total assets. Although this measure differs from the rate of return on equity, the two profit rates are highly correlated. A serious problem with both the rate of return on equity and the rate of return on assets is that the numerator and denominator tend to move together.

Profit rates may be mis-measured because of problems with reported profits. Although, economic theory makes predictions about economic profits, reported profits are accounting profits. Using accounting data can lead to biased estimates of rates of return.

**Dear distance learners!** What do you think are the main differences between economic profits and accounting profits? Let you try please.

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Have you tried? Good! There are several key differences between economic profits and accounting profits. Theoretically, economic profits are revenues minus the opportunity costs of inputs. Reasonably, good data exist on revenues, labor costs, and the costs of materials. However, accurately measuring the annual costs of long-lived assets such as plant and equipment, advertising, and research and development is difficult, if not impossible.

In calculating the annual capital costs of a firm, two problems arise with accounting data. First, capital should be valued its replacement cost, which is the long-run cost of being a capital asset of comparable quality. The rate of return calculated using replacement cost indicates whether entry or exit should occur. If the rate of return is greater than the competitive rate of return, then new capital should enter the industry. If the rate of return is less than the competitive rate of return, the industry should contract and capital should leave the industry.

Accounting data, however, use book value, which is calculated using the historical value of an asset. To illustrate the problem with this method, consider an asset that was in expense at the time of its purchase but whose price has increased significantly. In this case, the rate of return calculated using historical cost will be considerably greater than the rate of return using replacement cost, overestimating the profitability of investment in the industry.

A second problem with accounting data is the calculation of depreciation. Any durable asset, such as a machine, wears out over time; depreciation measures the decrease in economic value that occurs during the period the asset is used. Suppose, for example, that a landlord rents a building for Birr 1500 per year and has to spend Birr 300 per year to maintain the building. Thus Birr 300 is depreciation, and the landlord's net annual rental is Birr 1200. It is the return after depreciation has been deducted that matters to the landlord or, in general, to the investor.

Accountants calculate depreciation using one of several fixed formals, such as straight-line depreciation. This method assumes that an asset lasts for some fixed period and decreases in value in equal increments over that fixed period. If, for example a machine that costs Birr 1000 is assumed to last for five years, the annual depreciation would be Birr 200 for the first five years. If the machine happens to last more than five years, there would be no further depreciation.

Further problems with accounting data arise for expenditures on advertising and on research and development (R&D). Like expenditures on plant and equipment, money spent on advertising or on R&D may create effects that last over time. A successful advertising campaign in one year can affect demand in subsequent years if consumers remember the campaign. Similarly, R&D expenditures in one year can affect demand or costs in future years. Common accounting procedure is to deduct the entire costs of advertising or R&D in one year and then deduct nothing in subsequent years. If this practice is followed, the rate of return will be underestimated in the first year and over estimated in future years.

A final problem with an accounting data arises from inflation. Researchers must be careful when comparing rates of return to ensure that all rates are either nominal rates, which include the effects of inflation or real rates, the increase in income due to the overall increase in prices must be subtracted from the total increase in the price of assets to find the actual increase in the value of assets.

**Price-Cost Margins**

Another measure of performance used in numerous industrial organization studies is the price-cost margin. The main advantage of using the price-cost margin rather than profit rates arises from the level of aggregation at which data are reported. Because profit rates are calculated from firm specific data, reported profits for any diversified firm reflect profits from several industries. Hence, it is difficult to match profits with industry-specific measures of structure, such as the concentration ratio. The price-cost margin, however, is calculated from data available in the census of manufactures census data are reported at the level of the individual plant, which is typically much less diversified than are firms. Therefore, using census data makes the fit between the measure of performance and the measures of structure much better.

Unfortunately, the same feature that makes census data attractive can also be seen as a drawback. Because each plant shares certain joint costs with other plants in the firm, researchers cannot use accounting profits to calculate rates of return. Instead they typically estimate a price–cost margin.

To understand the rationale for using the price-cost margin as a measure of performance, start again with the Lerner index, . Because, data on marginal costs are usually not available, economists often assume long-run marginal cost with this assumption, the Lerner index can be written as:

…………………………….. (1)

Where, V = variable cost per unit, g = depreciation rate of capital, P = competitive rate of return, P = price, Q = output, and K = financial value of capital employed. The first term on the right in equation, (total revenue-variable cost)/ total revenue, is the price-cost margin. Under competitive conditions, price should equal long-run average (and marginal) cost. This implies that the price-cost margin should on average equal the second term on the right hand side of equation 1, if the industry is competitive. A common practice, therefore, is to use the price-cost margin as the dependent variable in a regression and to include the ratio of assets to sales as one of the independent variables. Equation 1 shows that this approach amounts to assuming that both the competitive rate of return and the rate of depreciation are the same for all industries in the sample, an assumption that may not be valid.

**Tobin's q of another measure of performance-** Tobin's q is the ratio of the market value of a firm's assets (as measured by the market value of its outstanding stock and debt) to the replacement cost of the firm's assets (Tobin 1969). This measure of performance is not used as often as either rate of return or price-cost margins. If a firm is worth more than its value based on what it would cost to rebuild it, then excess profits are being earned. These profits are above and beyond the level that is necessary to keep the firm in the industry.

The advantage of using Tobin's q is that, there is a difficulty/problem of estimation of either rates of return or marginal costs is avoided. On the other hand, for q to be meaningful, one needs accurate measures of both the market value and replacement cost of a firm's assets.

It is usually possible to get an accurate estimate for the market value of a firm's assets by summing the values of the securities that a firm has issued, such as stocks and bonds. It is much more difficult to obtain an estimate of the replacement costs of its assets, unless markets for used equipment exist. Moreover, expenditures on advertising and R&D create intangible assets that may be hard to value. Typically, researchers who construct Tobin's q ignore the replacement costs of these intangible assets in their calculations. For that reason, q typically exceeds 1. Accordingly, it can be misleading to use q as a measure of market power without further adjustment.

It is possible to determine the degree of monopoly over charges if Tobin's q can be calculated correctly. To do so, one must calculate how much earrings (excluding the return to capital) would have fall for q to equal 1. For example, let em be the constant annual earnings of a monopoly and ec be the constant annual earning of a firm under competition. The ratio of the market value of assets to the replacement cost of assets, q, equals the ratio of em to ec. For example, if q equals 2, earnings must fall by one-half before the firm is charging a competitive price.

### Measurement of Market Structure

A structure-conduct-performance study searches for a link between various elements of market structure and a measure of performance. To examine how performance varies with structure, we also need measures of market structure. A variety of measures are used, all of which are thought to have some relation to the degree of competitiveness in an industry. We now describe some of the common measures of market structure.

**Industry Concentration**: In most SCP studies, industry concentration is the structural variable that is emphasized. Industry concentration is typically measured as a function of the market shares of some or all of the firms in a market.

**Measures of Concentration:** A key variable in most SCP studies is a measure of market concentration. As it has been discussed, there are several possible measures of market concentration. Under alternative behavioral assumptions, the concentration ratio is the appropriate measure. Thomas saving modeled an industry consisting of a dominant group of firms and a competitive fringe. Using this model, profit of the industry and of the dominant firms increase with concentration ratio (CRn), the share of sales produced by the n dominant firms. Unfortunately, therefore, the theory does not give us unambiguous choice of concentration ratio. Furthermore, given that some of the hypotheses of interest involve the effect of concentration on behavior; it is problematic to assume some particular modes of behavior exante, until the theory can provide better guidance; it is advisable to view results that are sensitive to the choice of specification or of sample with some caution.

There are three generalizations that can be made about competitiveness and concentration in the various sectors and about trends over time. **First**, it is generally believed that ease of entry keeps most of agriculture, services, retailing and whole sale trade, and parts of manufacturing and finance, real estate, and insurance relatively unconcentrated.

**Second**, if concentration varies by sector, the overall level of concentration could change due to shifts among the sectors but the relative importance of the major sectors has not shifted much over the last several decades.

Profitability may affect the degree of concentration in an industry by affecting entry. One of the key questions posed in the introduction concerns whether a less competitive market structure causes higher profits. A test of this hypothesis is only meaningful if structure affects profits but not vice versa. That is, this theory should be tested using exogenous measures of structure, where exogenous means that the structure is determined before profitability and that profitability does not affect structure.

Unfortunately, most commonly used measures of market structure are not exogenous. They depend on the profitability of the industry. For example, suppose we use the number of firms as a measure of the structure of an industry, arguing that industries with more firms are more competitive. Extraordinarily profitable industries, however, induce entry if there is no competitive industry, which may have a small number of firms, in the long-run many additional firms enter if profits are high.

An exogenous barrier to entry is a better measure of structure than the number of firms. For example, if a government historically prevented entry in a few industries, those industries with the barrier should have higher profits but the higher profits do not induce additional entry.

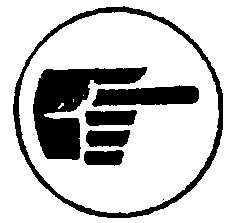
Unfortunately, the problem with obtaining exogenous measures of market structure is usually ignored in SCP studies. In particular the commonly used concentration measures are definitely not exogenous measures of market structure.

The serious problem in concentration measures are biased because of improper market definitions. The relevant economic market for a product includes all products that significantly constraint the price of that product. In order for industry concentration to be a meaningful predictor of performance, the industry must compromise a relevant economic market. Otherwise, concentration in an industry has no implication for pricing. For example, the concentration ratio for an industry whose products compete closely with those of another industry may understate the amount of competition.

**Concentration and Profitability**

Effects of other elements of market power on profits:

Many variables in addition to a measure of concentration have been included in cross-section SCP studies. Several of these are intended to measure barriers to entry. Concentration has a larger effect on profits in consumer goods industries, in which barriers to entry based on product differentiation are higher, than in producer goods industries.

** Main Points:**

* Diversity
* Goals of Firms
* Objectives of irms
* Organization
* Market structure
* Control of firms
* Sole proprietor
* Partnership
* Corporation
* Joint-stock company
* Market power
* Separation of ownership & control
* Organizational complexity
* Price-cost margin
* Excess return on sales
* Depreciation
* Tobin's q
* Replacement cost

🖏 **Chapter Summary:**

An organization of firms is a coalition of individuals, some of them organized into sub-coalitions, including managers, workers, stockholders, suppliers, customers, lawyers, tax collectors, regulatory agencies, administrators, workers, appointive officials, elective officials, legislators, judges, clienteles, interest group leaders, paid functionaries, volunteers, donors, donees, etc.

Structure of firms is any complex body referring the pattern or form or manner the constituent parts of that body arranged together systematically.

In reference to ownership of firms, the majority are share companies. With regard to the extent of managerial shareholding, separation of ownership and control in large companies is typical. In this case, ownership is widely dispersed, and management control is therefore, largely independent of the owners of firms. In firms there are always ***potential conflict*** of interests between the **shareholders** who own the company and the **managers** who direct it, and between different groups of managers charged with responsibilities for different parts and functions within the firm due to the presence of different goal that firms aspire to achieve.

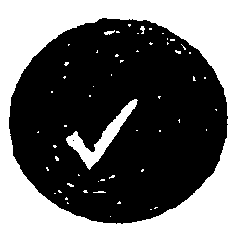
The five main aims that well represent the organizational goals of the firm are production goal, inventory goal, sales goal, market share goal and profit goal.

The conflicts of interest will be solved if the objectives are arranged in ***satisfying*** *or* ***aspiration*** levels, ***decision taking is sequential, organizational slack exists, and*** the use of ***standard operating procedures.***

Based on legal forms of firms, firms can be private sector including: sole proprietorship, Joint-stock company or corporation and partnership; public sector companies including: government companies, public corporations and departmental organizations; and joint-sector (venture).

Market performance of firms can be measured by using four different measures which considered a as proxies for the learner index in structure–conduct–performance (SCP) studies. These are excess return on sales, profit rate, price-cost margin and Tobin's q having different advantages and disadvantages.

To examine how performance varies with structure, the commonly used measures of market structure include: industry Concentration, measures of concentration, and concentration and profitability.

 **Check List:**

**Dear distance Learners!** Now it is time to check your understanding of the concepts discussed above.

Read each of the following questions and answer them by checking in one of the boxes under alternatives ‘’Yes’’ or ‘’No’’ ‘’Yes’’ ‘’No’’

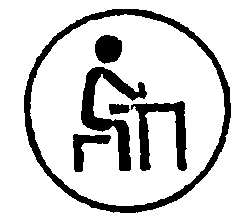
* Can you state the major factors that determine market power?
* Can you describe what do we mean by market structure?
* Can you describe how market performance measured?
* Can you explain excess return on sales?
* Can you describe the main differences between economic

profits and accounting profits?

* Can you explain how price-cost margin can be used as a

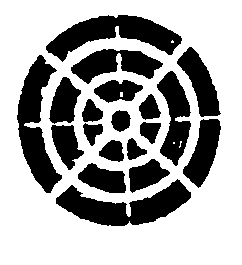
measure of performance?

* Can you describe industry concentration?
* Can you describe what do we mean by depreciation?

 **Self Test Review Questions:**

1. How does separation of ownership and management affect market structure?
2. List the different goals and objectives of firms.
3. Which legal forms of businesses are commonly found in Ethiopia?
4. The liability of the joint-stock company is unlimited but the liability of its members is limited. Explain why!
5. In a joint-stock company, what is the most significant influence is exercised by?
6. What are the main differences between economic profit and accounting profit?
7. Discus the nature of market structure.
8. Explain how the market performance is measured.
9. Describe the industry concentration.
10. State the major factors that determine market power.

# Chapter Six: Diversification, Integration and Merger

 **Desired** **Chapter Objectives:**

After successfully completing this section, students will get acquainted with:

* The meaning and basic concepts of Diversification, Vertical Integration and Merger;
* The motives behind Diversification, Vertical Integration and Merger;
* The empirical evidences for the benefits of Diversification, Vertical Integration and Merger; and
* Implications of Diversification, Vertical Integration and Merger for public policies;

Dear distance learners! Why do you think that firms are producing different types of products? --------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

What are the intentions behind that, competitive firms are sometimes trying to merge each other? ---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

## 6.1 Vertical Integration and Vertical Restrictions

Outside the firm, price movements direct production, which is coordinated through a series of exchange transactions on the market. Within a firm, these market transactions are eliminated and in place of the complicated market structure with exchange transactions is substituted the entrepreneur- coordinator, who directs production. It is clear that these are alternative methods of co-coordinating production (Ronald Cones, 1937).

A firm that participates in more than one successive stage of production or distribution of goods or services is vertically integrated. No vertically integrated firms buy the inputs or services they need for their production or distribution processes from other firms. A nonintegrated firm may write long term binding contracts with the firms with which it deals, in which it specifies price, other terms, or forms of behavior. Such contractual restraints are called **vertical restrictions**. For example, manufacturers commonly restrict their distributors by determining their sales territories, setting inventory requirements, and, where legal, setting the minimum retail price they can charge.

Some firms choose to vertically integrate and perform all production and distribution activities themselves, others partially vertically integrate. For example, they may produce themselves but rely on others to market the products. Some firms are not vertically integrated, but buy from a small number of suppliers or sell through a small number of distributors. Any firm that engages in successive steps in its production process is at least partially integrated. For example, a restaurant that bakes its own pies instead of buying them readymade is partially integrated. Thus, most firms are at least partially integrated. These firms often write complex contracts that restrict the actions of those with whom they deal. These vertical restraints can approximate the outcome from vertically merging. Other firms buy in the open market from any number of anonymous firms. For example, they may buy wheat from a wheat broker without knowing who grew it or using any formal long-term contracts. Such firms place no restrictions on their suppliers.

### 6.1.1 Vertical Relationship as a Solution to Economic Problems

Consider the simplest possible vertical structure, in which an upstream wholesaler, perhaps a gasoline jobber, sells to a downstream retailer, say, a gasoline retailer, and the retailer simply turn around and sells the product to the final consumer. To simplify this model, it is common to assume that the transactions costs of transferring and delivering the goods from one stage to another are zero. This implies that if a competitive gasoline retailer purchases a gallon of gasoline at a whole sale price Pw equal to Birr 1.50, the retailer will sell the gallon to consumers at a retail price PR equal to Birr 1.50, that Pw = MCR = PR = Birr 1.50.

Any of the following situations is theoretically possible:

|  |  |  |
| --- | --- | --- |
| ***Case*** | ***Wholesaler is*** | ***Retailer is*** |
| A | Competitive | Competitive |
| B | Competitive | Monopolist |
| C | Monopolist | Competitive |
| D | Monopolist | Monopolist |

**Dear distance learners**! Under which if any, of these four competitive environments would vertical integration affect price and profits? Let you try please.

---------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

Have you tried? That is good! **In case A**, both the wholesaler and retailer operate in perfectly competitive market; price equals marginal cost everywhere, and vertical integration would have no impact on price.

Figure 6.1, below depicts **case B**, with a competitive wholesaler and a monopolist retailer. The down ward sloping demand curve, DR, and marginal revenue curve, MRR, represent final retail consumer demand and marginal revenue, respectively. The MCw curve represents the marginal cost of the product to the wholesalers (for example, the wholesalers' cost per gallon of gasoline). With case B the competitive wholesalers must charge a price equal to marginal cost, therefore, Pw = MCw. The monopolist retailer then takes that price as its marginal cost and charges the profit maximizing price PR to consumers. Notethat PR is the joint profit maximizing price so that a profit maximizing vertically integrated firm would also charge PR. In this case the outcome is the same whether or not there is vertical integration.

Birr

PR

Pw MCW= PW

MRR DR Quantity

***Figure 6.1 Vertical Integration: Competitive Wholesalers, Monopolist Retailer***

Figure 6.2 below depicts case C with a monopolist wholesaler and a competitive retailer. The down ward sloping retailer demand curve, DR,  is also the demand curve, DW for the monopolist wholesaler, because the quantity along DR represents the quantity of the good that retailers will sell at any given whole sale price. The marginal revenue curve for the monopolist wholesaler is therefore MRw. The MCW curve again represents the marginal cost of the product to the wholesaler. With case C the monopolist wholesaler sets MCw = MRw and charges Pw. The whole sale price Pw becomes the competitive retailers' marginal cost, so Pw = MCR =PR. Once again, as in case B, PR is the price that a profit maximizing vertically integrated firm would charge. Thus, in case C, vertical integration again has no effect on output or price.

Birr

PR =Pw DR =DW

MCW

MRw DR Quantity

***Figure 6.2 Vertical Integration: Monopolist Wholesaler, Competitive Retailers***

Now consider case D. Surely with monopoly in both vertical stages, vertical integration must have some effect on price, and it does, consider figure 6.3 below.

Birr A

PR B

Pw DCMCR

DR

GFE MCW

MRwMRw =Dw Quantity

***Figure 6.4 Vertical Integration: Monopolist Wholesaler, Monopolist Retailer***

If the two monopolists vertically integrated, the firm would maximize profits by considering the internally evaluated marginal cost of the wholesale product to be MCw, not Pw. As a result, the integrated firm would charge a retail price of Pw, joint profits would be maximized at PW, and consumer surplus would be equal to triangle ACPw. Vertical integration is better for the two monopolists because area PwCEG is larger than area PRBFG and better for consumers because area ACPw is larger than area ABPR. . In this case, public policy should do everything possible to encourage vertical integration.

### 6.1.2 The Reasons for and against Vertical Integration

Most of the reasons that firms choose to vertically integrate have to do with reducing costs or eliminating a market externality. In general, a firm needs a good reason to vertically integrate because integration can involve substantial costs. There are at least three possible costs of vertical integration.

**First**, the cost of supplying its own factors of production or distributing its own product may be higher for a firm that vertically integrates than one that depends on competitive markets which serve these needs efficiently.

**Second**, as a firm gets lager, the difficulty and cost of managing it increase. The advantage of dealing with a competitive market is that someone else supervises production.

**Third**, the firm may face substantial legal fees to arrange to merge with another firm. Because of these costs, firms vertically integrate only if the benefits outweigh the costs.

**Dear distance learner!** What do you think are the major advantages of vertical integration? Let you try please?

----------------------------------------------------------------------------------------------------------------------------------------------.

Have you tried? That is good! There are at least six major advantages to integration.

1. **Integration to Lower Transaction Costs**

A firm may lower its transaction costs by vertically integrating. For example, the transaction costs of buying from or selling to other companies are avoided through vertical integration.

The desirability of vertical integration increases as the transaction costs of using the market place rise. There are four types of transactions in which transaction costs are likely to be substantial enough to make vertical integration desirable. They involve specialized assets, uncertainty that makes monitoring difficult, information, or extensive coordination.

1. **Specialized Assets**. A Specialized asset is tailor-made for one or a few specific buyers. To illustrate why the use of specialized assets provide a reason to integrate, consider a supplier that has custom designed its facility to suit a particular buyer's needs.

That supplier will be at the mercy of the buyer should any disputes arise subsequent to the construction of the supplier's plant. In this case, we expect to see vertical integration because of asset specificity. Which takes three main forms involving specific physical capital which includes buildings and machines that can be used for only one or a few buyers; specific human capital i.e. a firm may need workers specially trained in how the firm operates (specific human capital) such as engineers, to produce a particular product. If it uses outside contractors as opposed to its own employees, opportunistic behavior is possible. For example, a contractor who knows that a firm is facing a deadline may demand more money. Vertical integration in the form of an employment relationship can avoid such problems.

If successive stages of a production process must be located adjacent to each other (that is, they involve site specific capital), vertical integration is likely. The reason is that if a manufacturing firm stops demanding the input of a supplying firm, that supplying firm must relocate, which can be extremely costly. When a firm relies heavily on one supplier for specialized products, not only is it at risk from opportunistic behavior by the supplier, but a rival may try to interfere strategically with its supply.

1. **Uncertainty:** As an example of the second transaction cost reason for vertical integration, **uncertainty**, suppose that a buyer cannot determine how long a durable machine will last. The best way to predict quality (life expectancy) may be to observe the method by which the machine is constructed. If an outside firm cannot monitor quality controls on construction, it may vertically integrate where quality is crucial.
2. **Transactions Involving Information:** The third transaction-cost reason for vertical integration concerns transactions involving information. It may be difficult to structure a contract that gives the supplying firm the appropriate incentives to develop the information.

For example, if one firm pays another firm a fixed fee to obtain information on newly developing markets, the hired firm does not have an incentive to work hard at the margin to uncover all the information, and the buyer has no way of determining if the supplier did a good job. Disputes on payments may well and be difficult to resolve. Such problems can be avoided by vertical integration.

1. **Extensive Coordination:** The fourth transaction-cost reason to vertically integrate is to facilitate extensive coordination, for instance take industries with networks such as airlines and railroads. A railroad depends heavily on developing feeder traffic for its through routes. Although it might be possible to devise a price system for each link in the network, such as system would be very complicated.

As a result, there is an incentive for railroads to merge to deal with these coordination problems (Carlton and Klamer, 1983).

**2. Integration to Assure Supply**

A firm may vertically integrate to assure itself a steady supply of a key input. To do so, the firm may vertically integrate backwards buying or building the capacity to produce that input. Delivery problems may thus be reduced, because it is often easier to exchange information within a firm than between firms. Assurance of supply is important in markets where price is not the sole device used to allocate goods.

When rationing is a possibility, there is an incentive to vertically integrate in order to raise the probability of obtaining the product. A firm has an incentive to produce its own supplies to meet its predictable level of demand and rely on other firms for supplies to meet its less stable demand. Outside suppliers respond to this risky environment by raising prices. This arrangement, in which outside suppliers bear the risky demand, may not be most efficient system for reliably providing the product but may provide a strong incentive for a firm to vertically integrate (Carlton 1979).

1. **Integration to Eliminate Externalities**

A firm may vertically integrate to correct market failures due to externalities by internalizing those externalities. For example, McDonald's by owning or controlling all of its restaurants, can ensure a uniform quality, which results in a positive reputation (externality). Consumers, as they travel around the country, know that they can expect a certain minimum quality at any of this chain's restaurants.

**4. Integration to avoid Government Intervention**

A firm may be able to avoid government restrictions, regulations, and taxes by vertical integration. A vertically integrating firm can avoid price controls by selling to itself.

For example, the federal government controlled prices on steel products on several accessions. It sets a maximum price that could be charged for steel. Under binding price controls, a firm that buys steel is unable to purchase all the steel that it wants at the controlled price because producers choose to ration steel rather than supply as much as it demanded at the controlled price.

A firm that badly needs more steel for its production process may find that it pays to purchase the company that supplies it with steel. Because, transactions within a company are unaffected by price controls, a buyer who really wants steel can get it by purchasing a steel company and producing all the steel it needs. Purchasing a steel company is thus a simple way to avoid price controls. Indeed, if there are no transactions costs to buying steel companies, and if owners of steel mills are entitled to steel in proportion to their ownership, then price controls on steel are completely ineffective because all users vertically integrate by acquiring ownership interests in steel mills.

Similarly, taxes encourage vertical integration. Depending on where firms are located, they may be subjected to different taxes. For example, tax rates differ by state as well as by country. A vertically integrated firm may be able to shift profits from one location to another simply by changing the transfer price at which it sells its internally produced material from one division to another. By shifting profits from a high tax jurisdiction to a low tax jurisdiction, a firm can increase its profits.

Government regulations create incentives for a firm to vertically (or horizontally) integrate when the profits of only one division of a firm are regulated. For example, the profits that local telephone companies earn on local services are regulated, but their profits on other services, such as selling telephones in competitions with other suppliers, are not regulated. If a telephone company can shift profits from its regulated divisions to its unregulated division, it can effectively avoid the regulation of its local telephone service.

**5. Integration to Increase Monopoly Profits.**

A firm may vertically integrate to increase or create market power. A firm may be able to increase its monopoly profits in two ways by vertically integrating. **First**, a firm that is a monopoly supplier of a key input in a production process used by a competitive industry may be able to vertically integrate forward, monopolize the production industry, and increase its profits or, a firm that is a buyer may benefit from acquiring its sole supplier. **Second**, a vertically integrated monopoly supplier may be able to discriminate price, eliminate competition, or foreclose entry.

**6. Vertical Integration to Monopolize another Industry.**

A Victim of another firm's market power may vertically integrate to eliminate that power. For example, around the turn of the century, dairy farmers contended that they faced a single processor that bought their milk at a low, monopolistic price. To raise the price of milk, dairy farmers vertically integrated forward to form their own processors.

## 6.2 Merger and Takeover

There are three broad merger categories. These are: horizontal, vertical and conglomerate. Horizontal mergers involve firms that are direct competitors. The firms must compete in both the same product market and the same geographic market. Vertical mergers involve firms that produce at different stages of production in the same industry like steel producing industry. Conglomerate mergers involve companies that operate in either different product markets or the same product market but different geographic markets. Conglomerate mergers are usually subdivided in to three types: product extension mergers between companies that produce different but related products (e.g., laundry detergent and liquid bleach); geographic extension mergers between companies that produce the same product in different location (e.g. a Midwestern beer producer purchases a north eastern beer producer); and pure conglomerate mergers between firms operating in entirely separate markets (e.g., a telephone company purchases a rental car company).

### 6.2.1 Motives for Merger

Several major reasons are commonly advanced to explain mergers. Seven of the most commonly advanced reasons are discussed below.

**Market Power**

All three types of mergers can increase market power. Horizontal mergers are more likely than either vertical or conglomerate mergers to have serious anti-competitive effects. Because, horizontal mergers always increase concentration, the possibility exists that market power will be increased. Vertical mergers may result in increased entry barriers, particularly the capital barrier, or an increased likelihood of coalition.

Finally, although other negative effects are possible, the most likely negative impact of a conglomerate merger is a reduction in the level of potential competition.

**Efficiency Gains**

Mergers are often motivated by a desire to increase economic efficiency, and some mergers result in significant efficiency gains, Economies of scale may result from any merger but are most common in horizontal mergers. A horizontal merger may enable the consolidated firm to reduce its production or marketing costs. Vertical mergers also may result in real economies by reducing the transactions costs associated with coordinating the different stages of production, and conglomerate mergers may improve efficiency by taking advantage of synergies in production and/or distribution.

**Financial Motives**

A motive for merger may be speculation that “the whole is worth more than the sum of its parts”. When a large conglomerate is on a roll of good purchases, its stock value will rise, and so will its price/earnings ratio. If this successful conglomerate purchases another profitable company with a lower price/earnings ratio, and finances the purchase by exchanging its stock for the stock, that is, if the conglomerate pays more than the stock is worth on the open market. In addition, the owners of the conglomerate gain because earnings per share rise when the acquired firm's profits are added to the conglomerate's profits.

Suppose for example that a large conglomerate firm, hypothetically named GEAKO, has a price/earnings ratio for its stock of 20, but a small target firm, hypothetically named WEAKO, has a much lower price/earnings ratio of 10. If the annual profits (earnings) of WEAKO are 10 million, then its current stock value is 10 x 10 million = 100 million. If the annual profits of GEAKO before the merger are 500 million, its stock value is 20 x 500 million = 10 billion. If GEAKO acquires WEA KO, GEAKO's earnings rise to 510 million and its stock value rises by 200 million to 10.2 billion. Suppose GEAKO offers to pay 125 million for WEAKO. The WEAKO stock holders receive 25 million more than the stock is valued by the stock market, and the stock holders of GEAKO still come out ahead the price of 125 million is considerably below the 200 million increases in the value of GEAKO's stock.

There is also other financial motive for merger. Paid out corporate profits are taxed twice first, as corporate profits, and then as individual income there is an incentive for firms to retain profits and reinvest these retained profits in ways that lower their stock holders' personal income tax burden. If retained earnings are used to acquire companies, and the acquisition results in an increase in the conglomerate's stock value, then capital gains result. Capital gains are taxed at a lower rate than other types of personal income and therefore, it is preferable from a tax stand point to receive income in the form of capital gains rather than as distributed corporate profits.

**Risk Reduction**

It is often argued that mergers, particularly conglomerate mergers, reduce risk, and there is some truth to the old saying: it is foolish to put all your eggs in one basket. That is, it is important to realize that diversification by a firm lowers the firm's risk, but individual investors can always select their optimal combination of returns and risk by diversifying their investment holdings.

For a merger to reduce risk, the acquiring firm's profits must not be perfectly correlated with the acquired firm's profits. Although this technical condition is met in most mergers, a merger will not reduce risk significantly if the acquired firm operates in an industry that is highly interdependent with the acquiring firm's other business activities. In the case of considerable interdependence, when one part of the acquiring firm's business flounders, so will the acquired part.

Pure conglomerate mergers are the most likely mergers to reduce risk. Few horizontal, vertical, product extension or geographic extension mergers significantly reduce risk. However, they usually involve markets that are interdependent with the firm's other operations. If two coal companies merged and then the market for coal became depressed, both firms would suffer, and the merger would have done little to reduce risk.

**Empire Building**

A factor encouraging some mergers is the desire of an individual to build a financial empire. Strange as it may seem, many mergers are primarily the result of an individual's effort at self aggrandizement.

**Failing Firm**

A firm on the verge of bankruptcy may attempt to find a buyer to bail it out. Few large mergers appear to be motivated by the existence of a failing firm.

**Aging Owners**

In some cases, a motive for merger is the age structure of the company's ownership. If a company is privately owned or controlled by an individual without heirs, or without heirs who have a desire to operate the business, then the owner will sometimes search for a buyer. A merger permits the owner to retire on the anticipated future earnings of the firm because these earnings are capitalized in to the present value of the firm.

### 6.2.2 The Effects of Merger on Competition and Welfare

**Horizontal Mergers**

Horizontal mergers may result in both an increase in market power and a reduction in costs because of increased economies of scale. The positive effects of increased economies must be balanced, therefore, against the negative effects of increased market power.

Williamson has created a model to explain this trade off that is analyzed in figure 6.4 below.

Price

P2 A

P1 CB MC1 = AC1

P0 DMR DemandMC2=AC2

Q2 Q1 Quantity

***Figure 6.4 The Welfare Effect of a Horizontal Merger***

Before the merger, the industry performed competitively, with output equal to Q1 and price equal to P1, which equals marginal cost, MC1.

The Merger results in the creation of monopoly. After the merger, marginal costs are reduced to MC2, but because of monopoly, output declines to the level at which MC = MR at Q2, and price increases to P2. The merger reduces consumer surplus by the area P2ABP1, but also reduces the costs of producing the q2 units by the areaP1CDP0. Rectangle P2ACP1 represents the transfer from consumer surplus to producer profits that results from the merger. Triangle ABC represents the dead weight loss resulting from the merger. If the dead weight loss: triangle ABC is larger than rectangle P1CDP0, then the merger has a net negative effect. If the dead weight loss triangle ABC is smaller than rectangle P1CDP0, then the merger has a net positive effect.

Figure 6.5 below shows a numerical example in which a merger takes place in an industry with demand curve.

P= 100- 0.25Q.

Before the merger, the industry performed competitively, with output equal to Q1= 280 and price equal to Marginal cost MC1 = 30. After the merger, marginal costs fall to MC2 = 10 but output declines to q2 = 180, the level at which MC= MR, and price increases to P2 = 55.

Price

100

P2 =55A

P1 = 30CB MC1 = 30

MC2 =10

P0 = 10D MR Demand

0 180 280 400 Quantity

MR (100 – ½ Q)

***Figure 6.5 Cost Reducing Merger Resulting in a Welfare Gain***

The merger reduces consumer surplus by the areas P2ABP1 = 180(25) + (1/2) (25x100) = 5750, but it also reduces the costs of producing the q2 units by the rectangle P1CDP0 = 180x20 = 3600. Rectangle P2ACP1 = 180x25 = 4500 represents a transfer from consumers surplus to producers profits. Triangle ABC = ½(125x100) = 1250 represents the dead weight loss resulting from the merger. Since the dead weight loss, triangle ABC = 1250 is smaller than the cost savings area P1CDP0 = 3600, this merger has a net positive effect.

To understand the implications of figure 6.5, it is necessary to understand the trade off market power for cost reduction. If the effects of cost reduction exceed the effects of the market power increase, the merger has on balance a positive effect, where as if the effects of the market power increase exceed the effects of the cost reduction, the merger has on balance a negative effect.

**Vertical Mergers**

Suppose McDonald's purchased a large producer of restaurant equipment. McDonald would then buy its equipment from its own subsidiary, and therefore, the merger would foreclose other equipment suppliers from selling to McDonald. In theory, such a merger might result in the demise of restaurant equipment suppliers that had previously supplied McDonald, and as a result, market structure might deteriorate in the equipment industry. Furthermore, after the merger, McDonald's fast food competitors might be forced to pay higher equipment prices, and this could ultimately result in higher fast food prices to consumers.

As we have discussed in the previous section, if the markets were competitive, increased vertical integration and foreclosure would have no negative effects on efficiency, because prices in both markets would be equal to marginal cost regardless of the degree of vertical integration. In addition, because of the problem of double marginalization, if both firms had monopolies in their respective markets (bilateral monopoly) vertical integration would have a positive effect on efficiency.

**Conglomerate Mergers.**

Theoretically, conglomerate mergers may also increase market power. Attacks on conglomerate mergers have been based on four arguments:

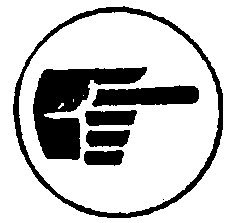
1. The elimination of potential competition,
2. Reciprocal buying,
3. Cross subsidization, and
4. Economic forbearance.

The classic potential competition argument was advanced when Procter and Gamble, that is the leading detergent producer, purchased Clorox, the leading bleach producer. It is argued that Procter's existence as a potential entrant into the liquid bleach market served as a check on the pricing behavior of existing liquid bleach manufacturers, because existing producers were aware that high prices and profits would encourage Procter to enter. According to this argument, once Procter purchased Clorox, this potential competition was eliminated and the price of bleach would increase.

**Reciprocity** refers to the possibility that a large conglomerate can encourage its suppliers to purchase inputs from another of the conglomerate's divisions. If a large food wholesaler purchased a major spice manufacturer, it might ‘request’ that its food suppliers purchase their spice requirements from its spice division. As a result, the market power of the acquired spice manufacture might increase, and small independent spice manufacturers might be forced to withdraw from the market.

**Cross-subsidization** is another argument that has been advanced against conglomerate mergers. According to this theory, conglomerated will attempt to gain an increased market share in one market by using profits earned in another market to subsidize short-run losses.

Some economists have also theorized that conglomerate mergers will result in economic forbearance between the Nation's leading firms, a situation in which no conglomerate firm will rack the boat in any market because it fears retaliation in another market. For instance, suppose General Motors purchased IBM, and Ford bought Compaq computers. Ford might discourage Compaq from competing too aggressively against IBM for fear of retaliation by General Motors in the automobile market. As a result, General Motors and Ford might compete less aggressively in both markets.



**Main Points:**

* Conglomeration
* Diversification
* Efficiency gains
* Efficiency power
* Integration
* Merger
* Vertical integration
* Vertical restriction
* Takeover
* Transaction costs
* Welfare gains

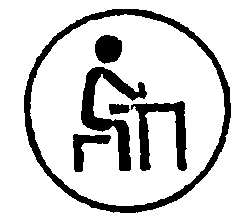
🖏 **Chapter Summary:**

Diversification occurs when a single-product firm changes itself into a multi-product firm. Diversification involves starting or acquiring new activities either related to or unrelated to a firm’s existing activities. It can also be widened to include selling existing products in new, geographically distinct markets. Therefore, a firm can diversify in one of two directions: it can develop new products or enter to new markets.

Integration of firms may be either horizontal or vertical in nature, or conglomerate diversification. Horizontal integration occurs when a business merges with or acquires another business. In contrast, vertical integration occurs in one of two ways. Conglomerate diversification occurs when a business moves into a totally different area.

The various motivations of vertical integration can be categorized under four main headings: efficiency gains in terms of technological joint economies, the ability to avoid imperfect markets, distribution cost savings, security and planning and avoidance of volatile markets.

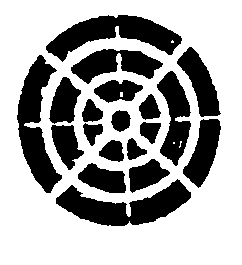
Mergers remain a frequent strategic choice of many firms. They involve the acquisition and incorporation of another enterprise into the acquiring firm; this may be motivated by reasons of market power, related or unrelated diversification or vertical integration. Mergers are major strategies for firms to increase their growth rates and profitability. Mergers are undertaken for a host of economic and strategic reasons to satisfy owners’ desires to increase profitability and managers’ desires to increase the size of the enterprise.

 **Self Test Review Questions:**

Solvethe following questions based on the analysis in this section.

* + 1. Explain the different motives behind Diversification, Vertical Integration and Merger with examples from real life.
    2. Discuss the implication of Diversification, Vertical Integration and Merger for public policies in developing economies.

# Chapter Seven: Advertisement

** Desired Chapter Objectives:**

After successfully completing this chapter, students will be able to:

* Understand the relationship between information and advertising;
* Describe the difference between search goods and experience goods;
* Describe the difference between informational advertising and persuasive advertising;
* Explain the social benefits and costs of advertising; and
* Explain the effects of advertising on social welfare;

Dear distance learners! Why do you think that firms are producing different types of products? ----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

What are the intentions behind that, competitive firms are sometimes trying to advertise? ---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

## 7.1 Information and Advertisement

Advertising may convey hard facts, vague claims, or try to create a favorable impression of a product. Some advertisements list a store's prices. If consumers learn that a firm has the lowest prices in a certain town, the demand for its products increases. In contrast, other advertisements merely show a product being used in a pleasant setting. An attractive person consuming a soft drink near a water fall may convey to consumers the impression that this product is refreshing. By convincing consumers that its product has certain desirable traits, a firm can differentiate its product from other products. As its product becomes differentiated, a firm may face a higher and less elastic demand curve, so that it can charge a higher price and earn greater profits. For example, one heavily promoted brand of bleach sells at a much higher price than many other bleaches that are physically identical.

**Promotions**

Advertising is only one of many ways to promote a product; firms also use price discounts and sales staffs. When it is hard to describe a product, a firm may include discount coupon in its advertisement to encourage consumers to try the product. Sales people act like living advertisements. In addition to advertising in news papers, on radio, and on television, firms may advertise indirectly by establishing a brand name or otherwise establishing a positive reputation.

For example, some agricultural farmers now sell their fruits and vegetables under brand names. Unlike sellers of unbranded products, these farmers are trying to develop a reputation for producing a particular quality of produce.

**“Search’’ versus “Experience’’ Goods**

The informational content of advertising depends on whether consumers can determine the quality of a product prior to purchase (Nelson 1970, 1974). If a consumer can establish a product's quality prior to purchase by inspection, the product has search qualities, Examples are furniture, closeting (determine style), and other products whose chief attributes can be determined by visual or facile inspection. If a customer must consume the product to determine its quality, it is said to have experience qualities. Examples are processed foods & software programmers.

Advertising provides direct information about the characteristics of products with search qualities; advertisements for search products often include photographs. In some cases a consumer cannot directly observe a physical attribute, but it can be concisely described. For example, food and drink advertisements may claim that their products are low in calories. In contrast, for experience goods, the most important information may be conveyed simply by the presence of the advertising, some advertisement do little beyond mentioning the name of the firm to enhance the firm's reputation. Such advertisers hope that consumers infer the quality of reputability of a firm by the frequency of its advertising and the expense involved. Fly-by-night firms may be less likely to advertise in expensive publications or on national television.

Some firms claim that all their products are excellent. Their advertisements contend that if you have experienced and liked one of their products, you will like all of them. Such advertisements may do little more than show the company's name; they do not describe the properties of each of its products. Alternatively, a firm may try to convince consumers that its product is different and superior to others, similarly brands-that is, it attempts to differentiate its product from competing brands (e.g. Coke vs Pepsi).

**Informational versus Persuasive Advertising**

Some economists distinguish between informational advertising, which describes a product's objective characteristics, and persuasive advertising, which is designed to shift consumer's tastes. For example, informational advertising may cite the price of a product, compare the advertising store's price of its rival's prices, describe the features of the product, or list its uses. Persuasive advertising may explicitly or implicitly make claims such as “smoke these cigarettes to look more mature and sexier”.

Some companies may try to change consumers' perceptions of their product using persuasive advertising, when they could not truthfully change their informative advertising. For example, the share of Coke grew by about a tenth in 1992 over 1991 when it altered its image.

**Advertising and Profitability**

All advertising is designed to increase the demand for a firm's product whether facts are used or merely smoke and mirrors. An increase in informative or persuasive advertising expenditures from α to α' causes an outward shift of the demand curve facing a firm from D(Q, α) to D(Q, α') as shown in the figure 7.1 below. The firm chooses its output, given its advertising expenditures, by setting itsmarginal revenue with respect to quantity, MR(Q α'), equal to its marginal cost, MC. That is,

MR(Q, ) = 2TR(Q, )/2Q, Where TR, revenues equals D(Q, ')Q.

C

P'

A

P

B D(Q) MC

MR(Q,) c MR(Q, ') Demand, D (Q, α'**)**

Q Q' Quantity (Q)

***Figure 7.1 Advertising***

The outward shift in the demand curve increases profits (not adjusted for advertising expenditures) for two reasons. **First**, profits increase by area B and area C because the firm increases its sales from Q to Q'. This extra profit is (P' – AC) (Q'- Q), Where AC is the average (and marginal) production cost, so (P'- AC) is the profit per unit. **Second,** the firm makes more profits on the Q units it used to sell, area A. Because, price rises from P to P', its profits on the first Q units increase by (P'- P)Q. Thus, profits (ignoring advertising costs) increase by the sum of areas A, B, and C due to the extra advertising.

If the extra expenditure on advertising, E= '-, is less than or equal to the increase in profits, A+ B + C, the extra advertising pays. If profits rise by more than the advertising expenditures, then advertising expenditures should be increased even more.

A profit maximizing firm sets its advertising expenditures so that the last birr spent on advertising increases its profits, excluding advertising costs, by exactly one birr. That is, the firm maximizes its profits by setting the marginal cost of advertising equal to the marginal benefit.

For example, Seldom and Doroodian (1989) find that advertising increases the demand for cigarettes, and that health warnings (essentially negative advertisements) reduce consumption. Firms, however, react to health warnings by increasing advertising. The lower the cost, the more advertising in a society is.

Essentially negative advertisements reduce consumption. Firms, however, react to health warnings by increasing adverting. The lower the cost, the more advertising in a society is. Usually, firms with market power incur promotional expense to cause their demand curves to shift out or became more inelastic, so they can sell more at higher prices. However, it is possible for firms to advertise and still face very elastic demand curves. For example, such a firm may act as a price taker but needs to inform customers where it is located. That is, advertising need not be inconsistent with price taking behavior. Moreover, competing firms may jointly advertise to increase demand for a homogeneous product.

## 7.2 The Social Benefits and Costs of Advertising

Product differentiation often has a positive social impact. Good locations are good for the economy because they minimize the costs of obtaining goods and services and therefore increase consumer welfare. Similarly, given a choice between good and bad services, many consumers willingly pay a premium to receive a good service. The most controversial aspect of product differentiation is advertising aimed at creating subjective differences between products.

### 7.2.1 The Social Benefits of Advertising

We begin by distinguishing between informational and persuasive adverting. Informational advertising provides consumers with truthful information about price, location, or quality. Most news paper, magazine, and direct mail advertising are informational. News papers in particular are full of advertisements emphasizing price. Grocery stores contend that they are the “low price leader”. Department stores announce major sales. Automobile dealers advertise rebates and low cost credit. These are examples of pro competitive informational advertising.

Empirical evidence suggests that advertising about price, referred to as price advertising, results in lower prices. Two separate studies found that eyeglass prices were significantly lower in markets that permitted optometrists to advertise than in markets that prohibited advertising. Proffer found that local news paper advertising has a presumptive effect by reducing the profits of convenience goods advertised in news papers.

Product differentiation puts pressure on manufacturers to produce high quality products. Even the simple act of placing a trade mark on a product provides some guarantee that the manufacturer believes in the quality of the product and will stand behind it. In the absence of trade mark identification consumers would not know who produced a product and there would be less incentive for producers to maintain quality. Advertising may help manufactures take advantages of economies of scale in production and distribution. Advertising provides a social benefit by subsidizing the mass media. Most of the revenues received by new papers, magazines, radio and television are from advertising.

Finally, advertising is an entertaining art form, and some of it is quite good. The best, or worst, advertising often becomes part of modern culture.

### 7.2.2 The Social Costs of Advertising

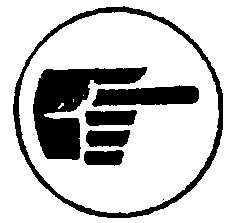
Few economists argue that informational advertising creates serious economic waste. Persuasive advertising is designed to create a subjective positive reaction to a product. Much of the advertisings on television are persuasive. Persuasive advertising may provide valuable information about the quality of experience goods. Experience goods are those whose qualities can be identified only through trial after buying the good. Common examples include consume non durable convenience goods such as beer, tooth paste, soap, cereal and consumer durable goods including household appliances such as refrigerators and washing machines. Experience goods are distinguished from search goods, whose qualities can be judged before purchase through pre purchase testing. Search goods include fresh fruits and vegetables, which can be squeezed and smelled to test for freshness; fresh meats, which can be viewed; shoes, which can be tried on; and sofas and chairs, which can be sat on.

Consider two producers of toothpaste. Both toothpastes contain fluoride and have the American dental association seal of approval, but the high-quality toothpaste tastes wonderful, and the low-quality toothpaste tastes horrible. The costs of production are equal for both products. Toothpaste is an experience good, so consumers cannot determine quality taste unless they buy the toothpaste.

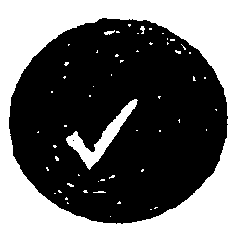
 **Dear distance learners!** Which firm has a greater incentive to advertise? Let you try please. ------------------------------------------------------------------------------------------------------.

Have you tried? That is supper! The horrible-tasting toothpaste producer can induce consumers to buy its product once, but few will buy a second time. The wonderful-tasting toothpaste producer, however, can depend on many repeated purchases. The producer of the high-quality toothpaste has a much greater incentive to advertise because advertising will result not only initial purchase but in repeat purchases. The low-quality toothpaste manufacturer has little incentive to advertise because advertising will result in initial purchases but few repeat purchases. Large advertising expenditures by the high–quality toothpaste manufacturer signal consumers that it produces a high–quality product, because only high-quality producers would advertise extensively. The low quality producer would realize that consumers will not buy its toothpaste a second time regardless of their advertising expenditures, and therefore, the low-quality manufacturer would not waste resources on useless advertising.

Although the social benefits of persuasive advertising maybe hard to identify, the private benefits are obvious. Persuasive advertising may increase market power and economic profits. The social costs of persuasive advertising, therefore, may be substantial.

** Main Points:**

* + Advertising response function
  + Experience goods
  + Informational advertising
  + Persuasive advertising
  + Search goods
  + Lerner index

** Check List:**

**Dear distance learners!** It is time to check your understanding of the concepts discussed above. Read each of the following questions and answer them by checking in one of the boxes under alternatives “Yes” or “No”

**“Yes” “No”**

* Can you describe the difference between search

goods and experience good?

* Can you describe the difference between informational

and persuasive advertising?

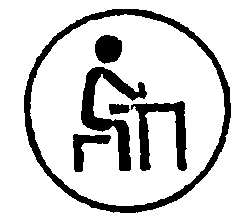
* Can you describe how advertisement increases profit?
* Can you describe the social benefits and costs of

advertisement?

* Can you explain the effects of advertisement on welfare?

🖏 **Chapter Summary:**

Advertising can be used to change consumer preferences so as to increase demand and make demand less price-sensitive. Expenditure on advertising is a cost incurred to increase sales. The relationship between incremental advertising expenditure and incremental sales is important in determining the optimal level of advertising expenditure. Advertising expenditure also varies with the nature of the product or service the firm is selling. Durable and experience goods have greater levels of advertising spending than other types of goods. The level of advertising is also influenced by the type of market in which the firm operates and the type of competitive activity adopted by competitors.

 **Self Test Review Questions:**

**Direction: Answer the following questions briefly**

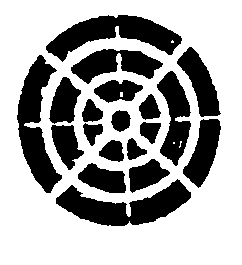
1. What are the main difference between experience goods and search goods?

2. Describe the main difference between informational and persuasive advertising.

3. Describe the social benefits and costs of advertisement.

4. Explain the effects of advertisement on welfare.

# Chapter Eight: Technological Progress

** Desired Chapter Objectives:**

At the end of this chapter students will be able to:

* Understand the different stages of technological change;
* Describe invention, innovation and diffusion;
* State the importance of invention, innovation and diffusion in the performance of a firm;
* Explain patent and patent protection;
* Describe the advantages and disadvantages of patent;
* Explain how patents encourage research;
* Explain how imitation discourage research; and
* Describe why many high technology innovations would be developed without patents?

**Dear distance students!** Can you guess the intentions behind launching of new products in the market? Why organizations are spending more on research and development activities? Is there any impact of invention and innovation on a certain economy?

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## Stages of Technological Change

Let us examine each stage in the process of change in some details forfull understanding.

**The first stage (*Invention*)** is carried on by indivi­duals or corporate bodies like research institutes, universities, government bureaus and companies (the source of invention). It is just like any other corporate activity such as sales or production where certain inputs are used to get some output in a broad sense; we may call invention as output of the research industry. If so, an invention will be a goal-oriented activity. A government or corporation will be making invention for solving some social problems or for the sake of extra profits or money. To achieve the goal of invention a series of steps will be taken beginning from the definition of the problem, the alternative routes to its solution and finally the output in the form of the invention. It is an orderly sequence, a matter of applying conscious intelligence to the solution of the problems. The ‘output’ of the process may not come during the stipulated time. There may be frustration, delay, failures, etc., but the process of invention goes on. In general invention can be taken as an orderly, intellectual, goal oriented process, a fundamental one, for the innovation or technological change in a society. It does not usually move in a straight line according to the plan, but takes unexpected twists and turns to reach the destination.

**The Second stage *(innovation)*** is a logical extension of invention. When an invention is made, its fruits are made available to the society through innovation. An entrepreneur or corporation comes forward, makes the required investments for the innovation. As mentioned earlier, innova­tion may be in product or process of manufacturing or any other activity of the corporation. It involves risks and uncertainties. An innovator bears them and it is precisely on this ground that economists justify existence of excess profits for him. *Process-innovation* and *product-innovation* are two important types of innovations.

***Process innovation*** arises when relative prices of factors of production change. If labor becomes costly, the firm may think of cost saving by adopting capital intensive technique and vice-versa. In the familiar isoquant framework, it implies a movement along the isoquant when the input prices change. There will not be any R&D expenditure involved in this, as technology will not change. Only the equili­brium situation for the least cost combination of inputs changes. Further, if technology changes this means that there is a new production function causing a shift of the isoquants. In this situation, the need for process innovation is obvious. The input proportions to produce a given level of output will change if there is technological change giving rise to the process innovation.

***Product innovation*** is necessitated because of a variety of reasons. Primarily, a product change may be stimulated either by a new technology or by a change in relative prices of the existing products. Changes in consumer preferences and cost of production- are the sources of change in relative prices of the products. If a product is costly for the firm and at the same time its price declines in the market because of unfavorable circumstances, it will be less profitable and, hence, is likely to be replaced by a new one.

The process of innovation has a well defined goal and the adaptation of the new technology or product to achieve the goal is an orderly management function of the firm.

**The third stage (*diffusion*)** is the imitation of innovation. The innovation, initiated by an innovator, spreads in the market. The rate of diffusion depends on market structure. If there are rigid patent practices and the government assistance in technological progress is negligible, then we expect a low rate of diffusion of the inno­vation. On the other hand, if technology is freely available, there are no rigid patent practices and investment requirements for the new technology are not alarming, then the rate of diffusion will be fairly high. From social point of view diffusion or spread of the innovation is desirable but from an individual firm point of view it is not, as the firm would not be able to maintain its gains through innovation when it is imitated by its rivals.

## Invention, Innovation and Diffusion

Many major technological changes begin with basic research, which is research aimed at gaining knowledge for its own sake. The research scientist in a major university laboratory working on quantum physics is engaged in basic research. Applied research is aimed at obtaining knowledge with the objective of using that knowledge for commercial purposes. The chemist working on AIDS in a pharmaceutical company's laboratory is doing applied research. The lines between basic and applied research, however, often becomes blurred. The chemist, for example, may in the course of his/her applied research make a basic research discovery of an idea that “should” work. In the invention stage the idea passes through its first rough tests, which indicate that it will indeed work. Invention is an important step in the process of technological development, but it is only a preliminary step. The next stage in the process is innovation, which is the first commercial application of the invention. Innovation requires refinement of the inventions “get the bugs out” and develops a marketable product. Finally, diffusion is the stage at which the innovation comes into common use.

**Patents and Patent Protections**

**Dear distance learner**! Do you know anything about patent and patent protection?

Patents provide an inventor with exclusive rights to a new and useful product, process, and substance or design. New products include machines (mechanisms with moving parts) or manufactured articles (without moving parts) such as tools. New processes or methods include chemicals process for treating metal or manufacturing drugs, mechanical processes for manufacturing goods, or electrical processes. New substances include chemical compounds and mixtures; this concept covers the composition of matter.

Now designs include the shapes of products where the shapes serve of functional purpose. In addition, improvements on products, processes and substances may be patented.

**Patent** is a legal monopoly grant that is awarded to inventors in exchange for their agreement to disclose their inventions to the public. A valid patent gives an inventor monopoly power to decide on the use of transfer, or withholding of an innovation. The awarding of a patent has an admirable objective, the dissemination of technological knowledge that might otherwise be kept secret, but the patent grant may be abused and come indirect conflict with another economic goal, the reduction of monopoly power.

Patents exist for one economic purpose- to increase the rate of technological advance without questioning some major technological breakthrough would never have been developed, or would have been developed much later, in the absence of patent protection. Economic theory suggests, however, that patent protection may not increase the rate of technological advance. In fact, theory suggests that in some cases patent protection decreases the rate of technological advance.

To understand the potential dilemma associated with the current system, consider the following three possible scenarios.

**Scenario 1:**

Suppose a weekend garage inventor, hypothetically named Mr. Tinker, is driven to invent, not by money, but by a fairly common character fruit-curiosity. One day Mr. Tinker discovers a new method for cheaply harnessing salary energy. Although Mr. Tinker never gave any thought to the patent system as he worked on his invention every weekend, on realizing the importance of his discovery, he runs to a patent differently, and a few years latter receives a patent. We then turns the patent over to a large firm, hypothetically called International Solar Machines (ISM), and on the basis of Mr. Tinker's patent ISM develops a solar energy device, which it prices well above marginal and average costs. Over the next decades, other firms spend millions of dollars in an unsuccessful attempt to invent around the ISM patent. Finally, after seventeen Years, the ISM patent is made public, but by then ISM is virtual monopolist in the solar energy business. Furthermore during the period of patent protection, ISM patented a number of minor technological advances based on Mr. Tinker's original patent, so that by the time the original patent expires, ISM is firmly entrenched as the leader in the salary energy field, and few firms will consider attempting to challenge ISM's stock holders have all made large fortunes, but the solar energy industry has performed in every inefficient manner in terms of static efficiency. Furthermore, to protect its investment in Tinker's original device, ISM withheld using some of its improvement patents for several years. Therefore, ISM slowed the rate of technological advance on improvements to the Tinker patent. Society has benefited from Mr. Ticker's device but has also paid a price in the form of reduced static efficiency and a slow rate of technological improvement on the basic patent.

**Scenario 2:**

Now consider on alternative scenario to the Mr. Tinker story, one without a patent system. Mr. Tinker develops the same solar energy device, and takes the device to ISM. A member of the ISM development department likes the idea, and ISM proceeds with development. Because of a lack of patent protection, ISM decides to introduce the device as quickly as possible before its competitors learn about the existence of the invention (perhaps rumors of the device have already begun to circulate). ISM is first into the market and initially charges a high profit-maximizing price. Within twelve to twenty-four months, ISM and Mr. Tinker have made a large economic profit, and the first imitations of MR. Tinker's invention appear on the market. After another twenty-four moths many imitations are available, but to keep one step ahead of the competition, ISM and some of its competitors have already marketed more advanced devices based on the original Tinker technology. Within five years, the basic Tinker device is obsolete, and many companies are competing for a share of the salary energy harnessing market. Some firms make a profit, others sustain an economic loss and leave the market, but on average the industry is earning normal economic profits. Prices approximate marginal and average cost, and the industry is performing efficiently from a static stand point. In this scenario, the lack of patent protection has actually increased the rate of technological advance, and the outcome is preferable to that of scenario 1 from both a static and dynamic perspectives.

**Scenario 3:**

Now consider another possible scenario in the absence of patent protection. Mr. Tinker develops the same solar energy device and approaches the development department at ISM. After careful consideration, the development department concludes that although the device is technologically sound, development would be too expensive, and therefore, without patent protection ISM could not expect to earn a profit, Mr. Tinker then approaches several other large high-technology firms, but each responds in the same negative manner. Finally, completely discourage, Mr. Tinker gives up, and the device never becomes a commercial reality. Because of a lack of patent protection, society has lost all of the potential benefits associated with Mr. Tinker's device.

Economic uncertainty surrounding the patent system exists because it is impossible to determine how often the first scenario occurs, as opposed to how often the second or third scenarios would occur in the absence of patent protection. Scenario 2, without patent protections, is clearly preferable to scenario 1, with patent protection. However, scenario 1, with patent protection, is clearly preferable to scenario 3, without patent protection.

Another way to think about this dilemma is to recognize that some inventions and innovations are patent dependent and others are not, that is, some technology would become available only with a patent system, but other technology would become available just as quickly or even more quickly, without a patent system. Like many economic issues, the patent system involves trade-offs. Some inventions and innovations that are not patent dependent are protected to ensure that society receives the benefits of all patent-dependent inventions and innovations. Because, the system involves social costs as well as social benefits, patent holders should not be granted unrestricted rights and privileges.

Patents induce inventions and innovations, but also increase monopoly power. The patent system always results in net social benefits for patent-dependent innovations. The patent system, however, always result in net social losses for non patent-dependent innovations because these innovations would be devolved without the casts of granting monopoly power. There are a variety of reasons why many high-technology innovations would be developed without patents. First, many inventions and innovations result from human curiosity and genius. Such inventions are driven primarily by a need to understand. The development of fire and the wheel, for example incentives for invention and innovation often result from first mover advantages or an ability to move rapidly down the learning curve. Third, complementary investments in marketing and service can provide sufficient protection from competition for new inventions or innovations (e.g. IBM). Finally, secrecy may provide better protection against imitation that patents because with patent protection the new technology is made public; whereas with secrecy competitors are prevented from gaining insight into the new inventions or innovations.

**Incentives for Investment**

**Dear distance learners!** What do you think is the reason that without patents or other government's incentives, there would be too little research? Let you try please.

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Have you tried? That is great! Most economists and policy makers believe that without patents or other government incentives, there would be too little research. The chief reason is that inventions are fundamentally new information, and information is public good. If someone possesses some information, you can possess and benefit from that piece of information. Thus, knowledge of the information does not prevent you from using it. If some consumers of the information can obtain it costless (for example, you can read a book in a library). The producer of the information has less incentive to produce it, and then everyone had to pay for it. Why would one be willing to incur the entire expense of developing new information, processes, or products of people could benefit from them for free? Although some people like inventors and firms undertake research for the pecuniary rewards. Thus, if they could not benefit from their new developments, this latter group would not engage in research.

Eliminating most such research would harm the society because it has social value. New manufacturing methods lower the costs of producing existing products and allow society to produce more output with the same amount of input. New products increased productivity (for example, improve seeds with higher output or better quality) or give pleasure.

**Imitation Discourages Research**

Without a patent, any one could use new information, and imitations of new inventions could be sold legally. Suppose you discovered a cure for AIDS. You could sell your new drug for large sums of money if a patent gave you exclusive rights. Without a patent other companies could duplicate your drug, and competition would drive the price to the competitive level. You would incur all the research costs but not all the private benefit (profits). Every firm wants to copy others' inventions, and no firm wants tog to the expense of inventing anything itself. Thus, without patents consumers could buy new inventions at competitive prices, but there would be few new inventions. Indeed, society tries to reduce the number of certain types of new inventions by not offering patent protection. For example, in the United States, you cannot patent a gambling device such as a slot machine.

**Patents Encourage Research**

**Dear distance learners!** Can you mention how patent rights encourage Research? Let you try place.

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Have you tried? That is good! By imposing costs on potential imitators, patents can give market power to patent holders. The resulting monopoly profits can be strong inducement to be the first to invent a new product.

A rational inventor engages in costly research up to the point where the expected marginal return from more research equals it marginal cost. If the inventor's return is less than the society's, the inventor tends to under invest in research. Patents may permit inventors to capture a large share of the benefits (internalize the externality) associated with the production of knowledge by insulating them from competition. By granting these exclusive rights through patents, society encourages more inventions in some industries. Patents may also encourage too much innovation. For example, suppose an improved method of weather prediction is developed that allows accurate prediction of crop yields after all planting decisions have been made. The inventor can make a fortune speculating on future farm prices. Despite the profits from speculation, there may be little efficiency gain to society from the new forecasting technique. Without patents or other incentives to engage in research and development there would be too little research, especially, when imitation is easy and rapid.

**Patents Encourage Disclosure**

Some countries' patent laws encourage disclosure of new discoveries sooner than other countries laws. To obtain a patent, an inventor must demonstrate that the invention is novel and not obvious.

By providing patent protection of inventors, society obtains two valuable results: greater incentives for additional research and development and an acceleration of innovation through disclosure of inventions.

Such disclosure can increase the pace of invention as one inventor builds on the work of another. Some firms do not patent discoveries so that their competitors will not learn about them. These firms must protect their secret knowledge from leaking out to others, as can occur when employees take a job with a competitor. It is illegal for employees to reveal trade secrets of their former firms. To the degree that firms use the patent system, there is greater disclosure than would occur with trade sectors.

**Value of a Patent**

Patents, with grant exclusive rights to success full inventors, also induce research. Unlike prizes or government research contracts, however, patents lead to distortions due to monopoly pricing. Thus, they are less efficient than optimal prices or research contracts if the government has sufficient information to induce the optimal amount of research. There are reasons to use patents, however, because the government typically has limited information. In any case, patents are an extremely common method of inducing research throughout the World.

Example for value of a patent: suppose that the first successful firm receives patent granting exclusive rights to sell the product. Does this reward of monopoly profits induce the optimal number of firms to conduct research? To determine how many firms engage in a patent race, in which several firms compete to be the first to make the discovery and to be granted the patent, one needs to find out how much the patent is worth.

Take the following assumptions in to consideration to calculate the value of the patent

a. The demand in each period for the new product is linear: P = 6 - 5Q

Where, P is the price and Q is the number of units sold.

b. The marginal (and average) cost of production is 1.

c. If two firms make a discovery simultaneously, they split the patents rights.

d. The interest rate r, is 10 percent.

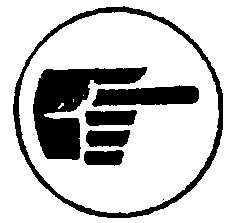
A firm that obtains exclusive rights under a patent acts like a monopoly and maximizes its profits by setting marginal revenue equal to marginal cost. In the example, the monopoly charges price Pm = 3.50, sells Qm = 0.5 units and makes annual profits of ∏m = 1.25. With monopoly pricing, the annual consumer surplus is 0.65, which is one–fourth of the consumer surplus of a competitive industry. These calculations show how much monopoly rights to sell the new good are worth per year. How much the patent is worth over time depends on how long it costs. We consider two cases: a patent that lasts forever and one that lasts for only a few years.

***Permanent Patent***: If a patent lasts forever, the patent holder earns monopoly profits forever. These large potential rewards may induce many firms to race to win the patent, resulting in excessive research effort.

If the patent lasts forever, and the interest rate r = 10 percent, the present value of the patent is = 12.50. That is, the present value of a stream of monopoly profits of 1.25 every year forever is 12.20. If you put 12.50 in a bank account that paid 10 percent interest, you would receive 1.25 interests each year. The present value of a permanent patent, in our example, is 50 percent (= 12.50/25) of the net social value of the invention if the product were sold at competitive prices.

Each firm has an equal chance of obtaining the patent, so the expected return to a firm undertaking research is 12.50 times the probability that it makes the discovery first, P(n)/n. A firm joins the patent race as long as its research costs, m = 1, are less than its expected benefits from winning the race.

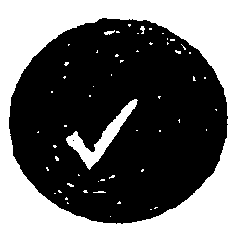
***Finite Patent Length***: By having patents last shorter periods of time, t, the government can reduce the incentive for excessive research. Having exclusive rights for only t years reduces the present value of the flow of monopoly profits, thus the expected private benefit to each firm is lower, so fewer firms engage in research.

** Main Points:**

* Invention, Innovation and Diffusion
* Patent and patent protections
* Imitation and research
* Patent and research
* Value of a patent

🖏 **Chapter Summary:**

There are three stages of technological change. Invention: the creation of a new idea; an idea which could occur outside a business context in a university or elsewhere; the main concern is in the generation of new idea; Innovation: is the first commercial application of the idea; and Diffusion: refers to the spread of the invention through the relevant industry. The quest for survival leads to widespread imitation, intense effort to respond which involve imitation and incremental innovation. In practice the three stages are not easy to isolate. In particular, inventions are normally improved drastically as they are put into wider use.

**Check List:**

**Dear distance learners!** Now it is time to check your understanding of the concepts discussed above.

Read each of the following questions and answer them by checking in one of the boxes under alternatives “Yes” or “No”

**Yes” “No”**

* Can you list and describe what do mean by stages of

technological change?

* Can you state what do we mean by innovation?
* Can you state what do we mean by invention & diffusion?
* Can you explain what patent mean?
* Can you explain how patent protection decreases the rate of

technological advance?

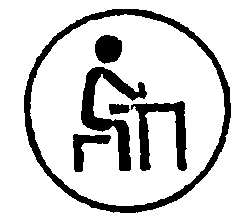
* Can you explain the reasons why many high-technology

innovations be developed without patent?

* Can you explain the reasons that without patents or other

government incentives, there would be little research?

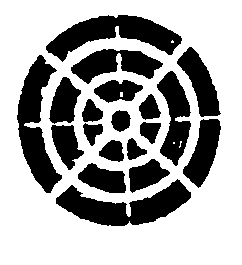
* Can you mention how patent encourage Research?
* Can you explain how patent encourage disclose?

 **Self Test Review Questions:**

**Direction: Answer the following questions briefly**

1. Explain different stages of Technological change with some examples from your experience.
2. What is the economic importance of patent?
3. State clearly how patent encourages research?
4. Discuss the preseason that imitation discourages research?

# Chapter Nine: Industrial Policy

** Desired Chapter Objectives:**

Up on the successful completion of this chapter, students will be able to:

* Understand the meaning of industrialization;
* Define the concept of industrial policy and explain the need for intervention in the industrial sector;
* Describe the role of industrialization in economic development;
* Understand merger policy;
* Explain monopoly;
* Explain the reasons why a firm becomes and remains a monopoly;
* Discuss different approaches and forms of intervention in industry;
* Explain the industrial problems and strategies of Ethiopia;
* Mention and briefly discuss the specific objectives of industrial policy in Ethiopia;
* List and discuss different promotional measures for undertaking industrial policy in Ethiopia;
* Identify incentive instruments for industrial policy in the Ethiopian context; and
* Recognize measures of control, institutional requirements and macro & sectoral policies to be taken in to account for effective formulation and implementation of industrial policy in Ethiopian.

**Dear distance learners!** Why industrial policy is required? Why not we rely on market system instead of direct intervention in the industrial sector? What is the importance of industrialization for ones nation economy? What do you think about the economists' justifications for the intervention in industry? What do you know about industrial policy in Ethiopia? ---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------.

Have you answered all these questions? That is fine! Now you can relate your answers with the following analysis and discussion.

## 9.1 Introduction

Most government actions have some effect on the industrial sector of the economy. In many instances, this is simply a consequence of policy elsewhere for example, import controls to help the balance of payments, prices and incomes policies to counter inflation and increases in interest rates to control the money supply or to halt an exchange rate depreciation. In other instances, government's action has a more deliberate effect on the operation of industry, but would generally still not be considered as 'industrial policy'. This is because the main objective is to influence some other aspects of the economy, as is often the case with expenditure on infrastructure and education.

Industrial policy usually relates to those policies whose main direct effect is upon individual firms and industries, or on industry as a whole. As Lindbeck defines the term, *industrial policies are meant political actions designed to affect either the general mechanisms of production and resource allocation or the actual allocation of resources among sectors of production by means other than general monetary and fiscal policies which are designed to influence various macroeconomic aggregates.*

## 9.2 Government Intervention

## 9.2.1 The Theoretical Case for Industrial Policy

Economists normally argue that intervention in industry is justified if it results in a net increase in economic welfare. Most changes benefit some people, and adversely affect others. As long as those who gain could, in principle, compensate those who lose, whilst still deriving benefit from the changes, welfare is enhanced (this is the potential Pareto improvement criterion). Although a theoretically sound objective, changes in economic welfare are difficult to quantify. Proxies such as improved employment, increased output or a more favorable balance of trade must be rejected because they are often poorly related to economic welfare. For instance, measures to increase employment or output could lead to the production of a quantity, quality and mix of goods and services which reduces society's welfare.

The time dimension adds a further complication, because there is a trade-off between current and future levels of welfare. Assuming full employment, more resources devoted to the production of goods and services in the present implies fewer resources devoted to investment aimed at enhancing future production. Society will be willing to forgo current welfare if it is compensated by a sufficient increase in future welfare. The rate of compensation depends on the rate at which society discounts future benefits (the social time preference rate); the lower the rate of discount the greater the quantity of resources that should be devoted to investment and to research and development (R&D) activity. While the market rate of interest can be used to derive an individual's willingness-to-forgo marginal changes in current benefits in exchange for future benefits, this may not apply to the society as a whole.

It is argued that government intervention can improve welfare in cases where markets fail to provide an efficient utilization of resources. Five circumstances are cited where markets produce levels of output that are not optimal from the viewpoint of society:

1. Monopoly;

2. Public goods, such as defense;

3. Externalities, such as pollution or congestion;

4. Common property rights; and

5. Differences between private and social time preference rates.

An analysis of the exact circumstances in which markets fail is a prerequisite to the examination of corrective policy measures. It is crucial to recognize that the case for industrial policy depends on uncertainty, imperfect information and as a result the presence of transaction costs. This means that neoclassical economic theory is an inappropriate basis for policy prescriptions. Furthermore, when it is recognized that the governments too may fail, it becomes even more difficult to provide an economic rationale for industrial policy.

A large literature on public choice theory suggests that many political acts can be understood by assuming that the objective of politicians is to maximize chances of re-election. Such acts may be inconsistent with welfare maximization. A vote-enhancing strategy causes politicians to intervene in cases where market failure arguments do not apply. The consequence is that governments may be willing to implement industry support programmes even where the result is to reduce the overall level of welfare.

The ability of politicians to pursue non-welfare maximizing objec­tives stems from the presence of imperfect information. This also explains how, where competitive forces are weak, managers in private sector firms are able to pursue objectives of which the shareholders would disapprove. If the electorate were fully aware of the costs of intervention as well as its benefits, then any policy that failed to enhance overall welfare would lead to a net loss of votes.

Even where motives are altruistic, government intervention to correct market failure may not be merited. Government intervention is unlikely to be warranted where few parties are involved, property rights are clearly assigned and transaction costs are low. In such circumstances market failure is unlikely. For instance, with just one party involved, the brewery is easily able to identify the source of polluted water and arrive at an optimal solution by negotiation. However, with air pollution, market failure is more likely, even where inhabitants have been assigned a right to clean air. The costs to an individual of enforcing his rights will be high in relation to the benefits to be gained from clean air. Here legislation and effective enforcement procedures to limit pollution, commonly found in advanced economies, may increase economic welfare.

The government may find it difficult to identify cases of market fail­ure. In the absence of perfect knowledge, costs are incurred in acquiring the necessary information to intervene successfully.

In the neoclassical literature it has been traditional to presume that if some decision maker is at an informational disadvantage, optimality can be rescued through the intervention of some omniscient policy maker with privileged access to informational secrets.

Even when a case of market failure has been correctly identified, the gov­ernment faces a further problem in that it cannot know with certainty the most appropriate form of intervention. A decision widely perceived as 'correct' in the current time period may lead to an undesirable out­come in the future. For example, controls on a monopoly to improve the current allocation of resources may lead to reduced innovation. Only where the optimal prices, products and technologies of the future are currently known could intervention be guaranteed to bring an improve­ment in welfare.

Another reason why the presence of market failure is not a sufficient condition to support intervention is that government action uses scarce resources. Resources are used in the administration of the policy; furthermore, intervention may take the form of transferring resources towards favored areas. There is also a dynamic impact. Government actions may induce changes elsewhere in the economy. Taxation to finance grants to small firms, for instance, may deter other firms from undertaking the investment required to maintain their own future competitiveness.

It is impossible ever to know whether industrial policy has been successful. Intervention itself alters the future state of the world, but is not the only force leading to economic change. In order to evaluate the impact of the policy, those changes which are the results of intervention need to be identified. However, this requires knowledge of the state of the world which would have prevailed in the absence of intervention. Consequently, the success of a policy can only be judged qualitatively.

These problems leave governments with a dilemma. The type of pol­icies that are more acceptable politically are those directed at improving the dynamic performance of the economy. Such policies cannot be addressed under neoclassical theory. The theories of the new institu­tional economics can give support to intervention that is designed to improve the workings of the market economy and to remove impedi­ments to the competitive process. This intervention would include measures aimed at improving information flows, at strengthening legal rights and improving the framework for their enforcement.

### 9.2.2 Different Approaches to Intervention.

Given the limited theoretical basis for industrial policy, government involvement is very much a matter of judgment and it is not surprising that there are many differences of opinion about the best approach to adopt. Moreover, these approaches cannot be precisely evaluated. Nevertheless, certain desirable features of an industrial policy can be specified. First, any policy should be capable of performing well in an environment where transaction costs are the norm, and where economic agents lack knowledge and are continually having to adapt to changes. Secondly, the opportunity cost burden of the policy must not exceed any perceived, potential benefits, having regard to its static and dynamic effects on the industries involved and also on the rest of the economy.

Four distinct approaches to industrial policy can be identified:

1. Laissez-faire;

2. Supportive;

3. Active; and

4. Planning.

The ***laissez-faire approach*** is founded on the presumption that information flows are perfect, and holds that the market is a better judge of desirable actions than government agencies. Most types of intervention commonly pursued under the name of industrial policy are rejected. Appropriate policies are those aimed at strengthening and promoting a competitive environment (for instance, through the control of monopoly or measures to remove ambiguities in the assignment of property rights).

The ***supportive approach*** also believes in the underlying superiority of market forces, but acknowledges the presence of imperfect information and transaction costs. Proponents of the supportive approach would agree with the laissez-faire approach in advocating policies to help markets function more effectively, but would often disagree over the form of desirable measures. In particular, the supportive approach would argue for intervention to improve the allocation and enforcement of property rights, to encourage education and entrepreneurship in order to foster the process of economic change. This approach also recognizes that external constraints may force the adoption of less desirable, or 'second-best', policies. For example, if Japan were to adopt protectionist measures then Ethiopia would be justified in adopting similar policies, with the ultimate intention of enforcing trade liberalization.

The ***active approach*** argues for wider and more direct government involvement in the industrial sector. This approach differs crucially from the previous ones in that market judgments are often supplanted by those of government agencies. Selected industries would typically be given financial support to promote restructuring and be protected from external competition by tariff and non-tariff barriers. Although protected from external competition, measures would again be taken to promote competition domestically.

The ***planning approach*** is a more extreme version of the active approach. Its rationale is that welfare can be improved through centralized planning. It argues that central planners are in a better position; because of their superior, economy-wide information to make welfare-enhancing decisions than individual firms. This advantage is greater where information flows are imperfect and where the economy is changing rapidly. Intervention is much wider-ranging and more comprehensive in planning approach than under the active approach.

These policy prescriptions vary because of different perceptions about the efficiency of markets and the ability of government agencies to identify and to correct market failures. The basic dichotomy in these views is between advocacy of non-interference (the laissez-faire and supportive approaches) and advocacy of a large element of government involvement which includes targeting policies to particular firms, sectors or activities (the active and planning approaches). In the laissez-faire and supportive approaches, the state is acting as an adjunct to the market, working at the edges of the market system whilst in the other approaches the state acts to shape the industrial landscape, taking a leading role in the industrial economy - a proactive rather than a reactive role. The greater is the belief in the efficacy of the market and in the impotence of government agencies, the greater the tendency to reject intervention and to favor an essentially 'hands off' industry policy. Similarly, the greater is the doubt that the principal objective of politicians is the enhancement of society's welfare, the greater the tendency to advocate an industrial policy that involves minimal government intervention.

The choice between the laissez-faire-supportive approaches and the active-planning approaches therefore turns on views as to which uses information more efficiently, state agencies or the market. Whilst it is undoubtedly true that state agencies have the ability to be better informed about government intentions and have wider sources of information than an individual agent, this does not necessarily imply that they have an informational advantage. One of the main strengths of the market mechanism is its ability to collate and to make full use of widely dispersed information. Although each agent commands but a tiny fraction of total information, by responding to price signals from the market each agent reacts as if s/he were much better informed.

Even so, most governments have chosen to intervene heavily in the operation of industry. In some cases, intervention has taken the form of accelerative policies designed to improve the speed at which the market operates. In others, a decelerative policy stance has been used to retard the operation of the market. More commonly, both stances have been adopted simultaneously for different areas of the economy. Few governments have chosen to make use solely of neutral policies (aimed simply at reinforcing the efficiency of the market). These would be more consistent with a laissez-faire or supportive approach, although they have sometimes been included as part of an active or planning approach. Table 9.1 summarizes the types of industrial policy consistent with these different approaches.

**Accelerative industrial policy**

The objective of *accelerative industry policy* is to speed up the innova­tion process by providing financial support to the most promising firms, markets or technologies. The premise behind such a policy is that an economy benefits from adopting innovations ahead of its trading rivals. This owes little to traditional arguments about interven­tion to correct market failure. Moreover, the essentially dynamic nature of the intervention proposed means that neoclassical theory has little to contribute.

**Table 9.1 Taxonomy of industrial policy**

**Policy approach** **Policy form**

Laissez faire Very limited intervention through neutral policies

Supportive Neutral policies

Active Accelerative and/or decelerative policies

Planning Accelerative and/or decelerative policies

However, it is doubtful whether such government intervention to accelerate the introduction of desirable new products and processes is worthwhile. Three main problems can be identified: *First*, uncertainty and information costs make the correct anticipation of market trends, technological developments and new market opportunities very difficult. In an uncertain environment the greatest chance of success comes from those who are best able to gather relevant information. These are the entrepreneurs most closely involved with a particular area. Government agencies are less likely to have the necessary specialist information about particular market developments. *Secondly*, having identified areas to support, how should the policy is implemented? General support to all new firms in a favored area would lead to a considerable waste of resources given the high failure rate of new firms. Directing funds to potential 'winners' is ruled out by the absence of a mechanism to identify such firms. Advocates of selective intervention may argue that uncertainty can be reduced by supporting firms with a proven record, but past success is not a reliable guide to future performance. *Thirdly,* the opportunity cost of accelerative policy must be taken into account. While favored firms are nurtured, the development of other sectors is hampered. Extra taxes or higher interest rates are imposed on firms and their customers to finance industrial policy, resulting in an overall reduction in the demand for goods and services. These other sectors, although not apparently promising, may turn out to be the real winners.

**Decelerative industrial policy**

Decelerative policies can be of two types. If an essentially viable concern is facing *temporary* financial difficulties, bankruptcy or liquidation may be avoided by providing assistance to help it rationalize production methods or to improve its product range. In the case of a firm facing *permanent* problems, the intention of decelerative industrial policy is to moderate the externality effects of its closure and to attain a better utilization of resources. Proponents of decelerative industrial policy argue that, while economic forces may quickly lead to a firm's collapse, markets operate too slowly in re-absorbing displaced resources. Instead of suggesting intervention designed to enhance market forces they seek to maintain the employment of resources in their current use. They propose intervention because of the length of time markets will take to re-establish equilibrium. Neoclassical theory can give little support to this because it implicitly assumes that adjustment is instantaneous.

Decelerative policies have been justified on social grounds, the argument being that preventing (or slowing down) firm closure leads to the attainment of a more equitable and less divided society. However, the most frequent justification for support to failing firms is that their collapse will lead to adverse effects on economic welfare. Externalities may arise from the closure of a major employer in a particular locality, causing a large proportion of the population to become unemployed with consequent ill effects on the rest of the community. There may also be *domino effects* on other companies. For instance, the failure of a motor manufacturer will harm firms supplying components to the motor vehicle industry. It would also lead to difficulties among firms involved in the distribution of motor vehicles. These domino effects would also follow from the failure of a small firm although, in most cases, decelerative policies have been biased in favor of large firms. The explanation for this is probably political, stemming from the widespread publicity given to the failure of large firms. Moreover, smaller firms are generally less experienced in lobbying for government assistance.

Despite the externalities generated by the premature collapse of a potentially viable firm, the economic case for government intervention to help it through its temporary difficulties is dubious. If financial markets are efficient, a basically sound company should be able to obtain financial support from the private sector. Conversely, if a firm cannot convince lenders of its basic soundness, then government resources should not be advanced to try to improve its operation. Even if financial markets do sometimes fail to recognize an inherently successful company (for example, because of transaction costs) this does not invalidate the basic argument. The government is likely to be at an informational disadvantage compared with firms already operating in similar lines of business. Such firms are more likely to possess the information on future demand relevant to identifying a failing company, taking it over and turning round its performance. Furthermore, financial support from the government may fail to promote efficiency, for it enables management, which has demonstrated its incompetence, to retain control of the company.

As with firms in temporary difficulties, support cannot be given to every firm in terminal decline, otherwise the economy would not be strengthen and become progressively uncompetitive. Since funds are likely to be limited, selection is required and here the government encounters another information problem. Choice of unsuitable subjects will lead to a waste of resources.

In most cases, it is expected that financial support will be required for a short time period, but the process of readjustment is often protracted. Devoting resources (particularly over long periods) to the pursuit of decelerative policies incurs significant opportunity costs. Again, the success of companies elsewhere in the economy will be hampered by higher taxes or higher interest rates causing a reduction in demand for their goods and services. In other words, the financing of decelerative policy generates its own domino effects leading to the contraction, reduced growth or even accelerated failure of companies in the unsupported sector. In principle, it is impossible to say how the domino effects of government policy on the employment of labor and capital compare with the domino effects consequent on the natural decline of firms. However, the overall effect is to reduce welfare because resources are switched from areas where revenues exceed costs of production to areas of failure, implying revenues below cost. There is also the cost incurred in the administration and implementation of the policy.

There is a real opportunity cost in the form of a burden placed on the rest of the economy - incurred by the pursuit of decelerative industrial policies and their 'success' or 'failure' can be established only after taking these costs into account.

What is the alternative to decelerative policies? In the absence of government support the assets of the failing firm would be sold to the highest bidder. It can be argued that this would be a better way of ensuring an efficient use of resources because the entrepreneur willing to pay the most for the firm will be the one (often already operating in a similar area) which sees the most profitable uses for the resources of the failed company. Company failure is an important aspect of the competitive process, serving to transfer resources from the hands of a management which has incorrectly predicted market developments.

**Neutral industrial policy**

Neutral policy seeks to improve the market framework within which economic agents operate. This type of policy is consistent with economic theories that explicitly recognized the presence of transaction costs. It is often advocated by those who recognize the difficulties involved in trying to pursue accelerative and decelerative policies. The task of government should be to try to create an economic, social and political environment that is conducive to efficiency and new initiatives. The government may not be responsible for picking 'winner' industries, but for increasing labor mobility, improving long-run employment prospects, and hence reducing the resistance to change. Specific examples of neutral policy include attempts to ensure that prop­erty rights are clearly assigned. The more certain it is that the legal system will enforce such rights (and the cheaper it is to seek legal remedy against infringement), the greater the incentive for citizens to acquire private property. Similarly, the easier and cheaper it is to transfer rights over property, the more desirable it is to own property. Following Coa­se's work, clearly assigned property rights would help to eliminate many cases of market failure. The pursuit of increased competition for instance, by the elimination of institutional barriers which prevent the entry of new firms could also be regarded as a neutral policy. Stimulat­ing competition within the legal profession might be particularly beneficial. This would improve the efficiency of the system for enforcing property rights.

**Conclusion**

In developing their industrial policies, governments have often paid little attention to economic arguments. One reason is because of a difference in objectives. Economists are concerned with the enhancement of economic welfare, but this may not ensure re-election for the politician. Secondly, neoclassical economics has little contribution to make many of the issues which governments usually consider vital. This is because traditional analysis is unsuited to problems where change is endemic because of its generally static thrust and tendency to ignore problems of uncertainty and lack of information. Thirdly, the approach of the new institutional economics, which can explicitly deal with such an environment, is generally hostile to the type of unplanned intervention favored by politicians.

Many governments have adopted an active or planning approach to industry. Evidence from particular countries appears to suggest that accelerative industrial policies have been more successful than decelera­tive ones. For instance, some of the strength of Japan's successful industries stems from that country's willingness to phase out less successful ones.

However, it is impossible to say categorically whether these successes and failures are directly attributable to government policies. It is also impossible to judge how successfully an economy might have developed without the opportunity cost burden imposed by the opera­tion of industrial policies. The opportunity costs associated with accelerative and decelerative policies are likely to be high. Given that markets fail and that there is a need for some government intervention in industry, neutral policies as part of a supportive policy aimed at improving the operation of market forces would appear to be the most promising.

## 9.3 Review of Focuses of the Ethiopian Industrial Policy

**9.3.1** **An Overview of Industrial Problems and Strategies**

Ethiopia's industrial base and economic development are the lowest even by African standard. There are various constraints to the country's industrial development. Among the many constraints the most notable ones are:

While, the sector has been dominated by capital-intensive technology, and it is fully dependent on foreign capital goods and to a large extent for raw materials, its foreign currency earning capability has been limited; the foreign currency earning of Ethiopia is based upon primary agricultural outputs but as the country is by and large a price-taker in the international market for these products, the country finds it difficult to generate all the foreign currency required for its industrial development; obsolescence of machinery and equipments, and the low level of local technological development; lack of technological information; lack of skilled labor; low demand for industrial goods which emanates from low level of income; low quality of locally manufactured goods and hence consumer bias against local products; lack of well developed infrastructure and under capacity performance. Manufacturing sector of Ethiopia is structurally unbalanced and technologically backward, resulting in a state ofdeclining productivity and deteriorating competitiveness. The policies pursued in the past failed to initiate appreciable industrialization in the country. On the other hand, experiences ofsuccessful industrializers, clearly underline the need for a guided industrial policy.

Toenhance industrial development, the governments of Ethiopia have been pursuing different development strategies. In the Imperial era import-substitution strategy was formally pursued. Industrialization of the time was characterized by the promotion of foreign investment, the establishment of large and medium scale foreign-owned enterprises active in import substitution production and strong growth. A series of policies were formulated topromote foreign investor participation. These incentives included 5 to10 years tax holidays, low duties 'for imported raw materials and export value-added goods, tax exemption on dividends and the expatriation of profits and proceeds obtained from sale of assets etc. As the effort was concentrated on large and medium scale industries the small-scale industry was almost neglected. The trend of the industrial development took a new turn since the mid 1970's when the strategy for industrial development was pursued by the sole involvement of the government and the private sector was discouraged. The 1974 coup has made it possible forall major industrial operations tocome under the direct control of the government and the private sector was discouraged. This led torestructuring, reorganizing and centrally planning of industrial development. Private ownership was mainly limited t*o* small-scale and handicraft industries. The import-substitution strategy adopted by the Imperial government, however, was further pursued. In the post 1991 period the change in government brought about significant change in industrial policy in favor of liberalization and privatization of the industrial sector especially the manufacturing sub-sector. The current industrial development strategy is based upon the overall economic development strategy known as ADLI. The major goals of the ADLI are the use of labor-intensive technology and local resources; promotion of economic efficiency; achievement of international competitiveness in areas of clear comparative advantage in industrial exports; development of domestic technological capabilities forthe production of intermediate inputs, spare parts and capital goods, etc.

In the following section brief highlights of some issues that need careful consideration in formulating an active industrial policy for the country by drawing lessons from successful late industrializers and firmly based on the concrete conditions that currently prevail in the country's manufacturing.

**9.3.2** **Specific objectives of industrial policy in Ethiopia**

While the overarching long term objective of industrialization remains high employment, thereby improving the standard of living of the population, industrial policy should primarily identify the specific objectives/goals to be achieved over a defined period of time. Countries differ in their industrial structure, technological status, efficiency, competitiveness, etc. This in turn leads to differences in their specific objectives. Most manufacturing industries in Ethiopia are technologically backward and the sector as a whole has very weak sectoral linkages and internally an unbalanced structure. As a result, it is dependent almost entirely, on the rest of the world for its intermediate inputs and capital goods; it has very low and declining productivity; and internationally, it is least competitive. This characteristic, therefore, suggests what the specific objectives should be. Successful industrialization in Ethiopia, therefore, should basically achieve the following objectives:

(**a) Create a more complete structural linkage between manufacturing and agriculture**

**(b) Create an internally balanced manufacturing sector**

**(c) Enhance the productivity and efficiency of firms**

**(d) Develop dynamic comparative advantage of industries**

**(a) Sectoral linkages**: A unique feature of manufacturing is its position vis-à-vis the other sectors of the economy. It is the only sector that has a linkage with all other sectors of the economy, including agriculture, mining, transport, communication and services through its input-output structure, i.e., demand for raw material inputs and supply of intermediate and capital goods. In the Ethiopian context, the backward linkage of manufacturing with agriculture is significant. The manufacturing sector largely feeds on domestically produced agricultural raw materials. However, its forward linkage with agriculture is loose. Traditional agriculture requires a great deal of modern technology inputs including fertilizer, pesticides and insecticides, labor saving improved farming and harvesting implements, and transport supporting facilities to enhance productivities. In this respect, the manufacturing sector failed to supply such implements to agriculture. As a result, agriculture heavily depends on outdated traditional farm implements and inputs and on imports for its intermediate inputs capital goods. So, a prime and immediate objective of industrialization would be to meet the demand for inputs and capital goods of agriculture.

**(b) Balanced structure among industries**: the structure of industries within manufacturing, i.e. structural linkages among consumption, intermediate and capital goods industries is grossly unbalanced. As the sector is overly dominated by consumption based firms, demand for capital goods and intermediate goods are largely met through imports. The linkages among industries are very weak. Critical intermediate inputs are largely imported. A developed manufacturing sector satisfies its own intermediate inputs and capital goods from within. Another important objective of industrialization, therefore, would be to create a structurally balanced manufacturing sector, less dependent on the external economy at least for critical and timely inputs, and more vibrant and dynamic internally.

**(c)** **Productivity and efficiency:** Survey results have shown that productivity and profitability of most firms have been declining for long, rendering them less competitive even in the domestic market, thereby operating at a level less than full capacity. Because of technological backwardness, most firms are inefficient. Another central objective of industrialization, therefore, is to enable firms update their technology, improve their managerial and labor skills, and enhance their marketing capability so as to move to a high productivity and efficiency frontier. It should be underlined that an industrialization strategy in countries such as Ethiopia should not be simply picking winners and dropping losers. Given the underdeveloped nature of the sector, Ethiopia cannot afford to abandon firms and waste the few experienced managers and workers. So the strategy should be to support firms in all possible accounts while simultaneously pressurizing them to improve their productivities irreversibly, and remain in the business.

**(d) Dynamic comparative advantage:** Ethiopia's comparative advantage today lies in its natural endowments, mainly agriculture and cheap (and trainable) unskilled labor force. However, given the low level of labor productivity and the weakness of agriculture, even this cannot be relied on for long. Dynamic industrialization primarily requires developing technologically leading industries which could create positive externalities and spillover effects for other industries. The competitive edge of today's industrialized economies lies on dynamic comparative advantage, which is essentially superiority in technological capability high-tech industries and technically skilled labor. Thus developing broad based technological capability in order to emerge efficient and competitive in the long-run, should be the central objective of industrialization in Ethiopia.

**9.3.3 Selection of industries for promotion**

As noted above, most manufacturing firms are structurally weak and inefficient. In this respect, promoting manufacturing industries in Ethiopia would involve considerable financial, human and other resources that could not be easily affordable. It would be beyond the capacity of the state to support many industries simultaneously. Effective industrial promotion, therefore, can only be carried out selectively, on priority basis, and in phases or sequences.

Moreover, selection of firms/industries should be based on a set of identified criteria, which would satisfy the specific objectives outlined above. Accordingly, industrial groups which satisfy the basic objectives, and hence which should be given more priorities than the rest, include the following:

(i) **Industries producing modern technical inputs to agriculture:** This involves firms manufacturing fertilizers, pesticides, insecticides and improved implements. There is little disagreement on the critical role that technical inputs play in raising productivity. Currently, only less than half of the farmers in the country (much less in terms of acreage) use fertilizer. Moreover, the rate of fertilization is much less than the recommended minimum. Therefore, increasing productivity in agriculture significantly demands augmenting the level of fertilizer input exponentially.

Moreover, as the merit of inorganic fertilizer is becoming questionable worldwide, the applicability of alternative inputs (organic fertilizer) is widely under consideration. It is, therefore, essential that Ethiopia shifts to such alternative inputs not only to enhance productivities, but also to maintain and further promote its agricultural export. This calls for producing such technical inputs which are suitable to the specific soil condition of the country in large scale.

Also, Ethiopian subsistence agriculture is dominated by micro size plots, largely less than a hectare. While application of mechanized farming is not easily practicable because of small size farms and difficult terrain, as well as the problem of affordability, farmers are still deploying age old farming and harvesting tools and techniques. In many countries the green revolution has already introduced various labor-saving, low cost and productivity augmenting appropriate implements. In Ethiopia little has been done in this particular case.

Therefore, manufacturing industries in these areas, specifically those engaged in the production of fertilizer, pesticides, insecticides and improved farm implements have to be encouraged. Promoting such firms has many advantages. Primarily, it supports the food security and poverty reduction programs. It also creates a regular and reliable supply of inputs, and labor being relatively cheap; it can also be expected to lower production costs, at least, in the longer term. It further reduces import costs substantially. Currently fertilizer import alone accounts for nearly four percent of the value of total imports.

**(ii) Industries producing intermediate and capital goods:** Lack of investment coordination created a structural imbalance (imbalance among consumption, intermediate and capital goods supply). While intermediate inputs supplying firms are few, capital goods industries are largely lacking. This resulted in heavy dependency on imports for intermediate and capital goods. Some of the intermediate inputs, such as chemicals, are so critical that lack of them could significantly retard production. Therefore, industries which produce critical intermediate inputs and capital goods should be given due priority for promotion. Such industries, with relatively high potential linkages, include basic chemicals, iron & steel, cutlery & hand tools, basic and general purpose machinery, paints, varnishes and mastics, etc.

Promoting such industries will significantly induce more new entrants through the forward and backward linkages effect, thereby expanding the sector, and hence creating more employment. Since such industries lie at the center of the linkages, they have strong spillover effects setting the required technological and quality standards.

Except fuel and spare parts, the remaining import demand of the sector constitutes intermediate inputs. Promoting industries with high linkages, therefore, will substantially reduce the import demand of the sector as a whole. This leads to a structural change towards a more independent and internally vibrant manufacturing sector.

**(iii) Import cost reducing and export promoting industries:** A major challenge of industrialization at least at the initial stage, is the massive import demand, which far exceeds export earnings. Therefore, promoting both import substituting (or import cost reducing) and exporting activities is not only complementary and reinforcing, but also necessary.

Though most manufacturing industries use imported inputs, the import demand of some industries is relatively much larger than others. In most cases, the demand for such industries would be met if the internal structural problem of the sector is resolved, i.e., if the capacity of intermediate goods producing industries is augmented substantially. There are, however, industries with relatively weak linkages but high import demand. Industries such as battery manufacturing, basic iron and steel, etc., are largely import intensive. Therefore, establishments producing inputs to industries such as metal casting foundries, iron bar and iron sheet industries, chemical industries, etc., have to be the focal point of promotion.

Promoting export oriented industries is a well recognized strategy. Ethiopian manufacturing is least known for its export performance. Currently, export is literally a single industry's affair, that of the leather tanning. Other industries making limited export effort include sugar, textile, meat and fruits processing. Most of these export oriented industries are natural-resource-based agro-industries, hence exploiting the existing comparative advantage of the country. Capitalizing on this natural resource potential, promoting such agro-based exporting industries is obviously justifiable.

Export promotion, however, should not be limited to these industries alone. Export diversification is essentially a key strategy. Even more important is exporting of intermediate inputs, though the short term prospect, at least in large scale, is limited. Despite this, export promotion should be open equally to all industries capable of making the effort.

**(iv) Efficient and innovative firms:** irrespective of the above categorization, there are firms which emerge efficient and innovative on their own effort. Such firms could be exemplary, and their experience could be diffused to other firms if supported and promoted to expand their scope and scale of activities. From time to time, a number of such innovative firms have emerged in the manufacturing sector. For instance, successful ventures such as manufacturing of elevators through reverse engineering and adaptation, truck and trailers manufacturing, building a water based machine cooling system in a plastic products manufacturing enterprise, and the like have been witnessed. There are also related ventures in experimenting with alternative sources of energy, such as solar energy. Recently emerging enterprises engaged in electronics industry, such as computer assembly and TV assembly have to be encouraged to move into manufacturing of parts. For instance, the lack of policy to support and encourage the few auto assembling firms to move into higher value added manufacturing stages, has left this industry in limbo with little technology transfer to other industries. Also, the high-tech skill said to be the mark of Ethiopian Airline is confined within itself without any spillover effect to other industries for decades. Hence, encouraging and promoting such enterprises so that they could expand and extend their activities to manufacturing would allow other industries/firms to benefit from their innovative experiences.

**(V) Strategic industries:** the relatively cheap and reliable supply of agricultural products, which make up the bulk of the raw material inputs for agro-based industries, such as leather, textile, sugar, meat, fruits and vegetables processing industries, along with cheap and trainable labor, provide the static comparative advantage of the manufacturing sector. However, industrialization, in the main, is creating a long-term dynamic comparative advantage, i.e., building technological capability- expanding technologically leading industries and creating technically skilled labor force. Promoting strategic industries which could generate technological externalities to all other industries is the central long-term strategy of industrialization.

Such industries involve electrical and electronics, chemical, iron casting foundries, iron sheet, iron bar, aluminum manufacturing, machinery manufacturing, precision instruments, and other engineering industries. In Ethiopia, however, strategic industries are largely missing and they have to be created, nurtured and developed through new investment. This should be primarily the focus area for public investment as well as FDI.

The categories outlined above are quite broad. A large number of industries and firms fall under these categories. But as intervention resources are limited only a few activities should be promoted at any time. This implies that there is a need for further prioritizing industries and firms. For instance, even after selecting chemical industries, it may be necessary to identify further a few relatively more important chemicals for promotion in the first phase, to be followed by others at a latter phase. Drawing such priorities requires more detailed studies of each industry identified for promotion.

However, it should be underlined that promoting a single industry has practical limitations and could be less beneficial than promoting a group of closely linked industries. In practice the latter is advantageous and often preferable. This is so particularly when an industry has both forward and backward linkages.

Moreover, promotional activity is not passive. It is rather, a very active exercise. It requires aggressively challenging industries/firms to improve, actively move to a higher stage, to be competitive and become more professional in return for active support or else face the consequences.

**9.3.4 Promotional measures**

Now that the industries to be promoted are identified, what is the role of the state in promoting the industries? What are the measures that the state could undertake in the Ethiopian context? It should be underlined that intervention should be comprehensive. There is little outcome if investment is encouraged while ignoring marketing activities; it is also less useful to upgrade the hardware technology of plants while the skill of workers remain rudimentary. So interventions, or promotional measures must be undertaken in all markets, including product market, input market, capital market, technology market, skill market and foreign direct investment. Moreover, interventions in all markets should be closely coordinated. One without the other may be ineffective even counterproductive. Moreover, as noted above, interventions could simultaneously involve broader and linked group of industries or selectively, a single industry, firm, or product.

A number of measures are identified below. While some of these have common features for many developing economies undertaking industrial policy, others are specific to the Ethiopian manufacturing sector.

1. **Identify the specific problems/constraints of and criteria selected industries**

Survey results have indicated that most firms have little idea about the internal critical problems of their plants or firms, particularly technical aspects. They have little information or knowledge outside their own firm. The same is true with respect to the new technology on the market, productivity levels of sisterly firms in other countries or at international level, new management techniques, labor skills, new product qualities and mixes of improved raw materials to improve product quality, etc. Lack of such knowledge leads managers to think that their main problem is lack of market and shortage of raw materials. So, identifying the major problems and critical constraints of selected industries and firms is precisely the initial major undertaking of the industrialization process.

This requires establishing teams of experts which form the nucleus of the office which will run the industrialization process. Such teams should be composed of versed experts in each industrial activity, involving largely engineers in various fields (chemical, electrical, mechanical, hydraulics, etc.), industrial chemists, production managers (in textiles, leather, foundries, etc.), economists, etc. It is these teams of experts which will visit each firm, identify their problems with respect to technological status, labor skill, product quality, managerial techniques, etc., and recommend what specific promotional measures should be undertaken, what instruments to use, what incentives to provide, for how long and to what extent, etc. It is these teams which will recommend the type of technology, the size of the firm, labor skill, product quality, etc., for new investment in a specific industry. In short, these teams involving experts of international standard with full information access to and knowledge of manufacturing technology will lead the industrialization process in the country.

Once detailed recommendations are in place, promotional measures appropriate for each industry/firm could be outlined or planned. Leaving such specific promotional measures to be determined by final studies, relatively broad promotional measures which could be undertaken in the context of the Ethiopian manufacturing sector are identified below under each market.

1. **Product market**

Promotional measures in the product market are related to investment, production and marketing.

**In the area of investment:**

* **Coordinating investment and production horizontally and vertically:** This creates interdependency and close structural linkage between domestic industries thereby reducing external dependency. Such as:
* it economizes scarce investible/capital resources;
* it reduces unnecessary or wasteful competition; and
* it creates markets through increasing linkages.
* Targeting products (hence firms/industries) and actively **seeking for investors.**
* **Setting the minimum optimal size of firms** for new investment which would enable them to be internationally competitive.

**In marketing:**

* **Maintaining a higher tariff margin** to limit the volume of imports for targeted products, to provide space or learning period (improving the practice of application of new technology, capability/skill build up, improving marketing techniques, etc) to new investments as well operating industries selected for promotion, particularly industries such as chemical, machinery, iron and steel, and other engineering industries
* **Reservation of markets** (such as government purchase) for targeted export or other products.
* **Providing a computerized databank** on foreign markets, buyers and suppliers, and on supply potentials of Ethiopia. The Ethiopian Export Promotion Agency could handle such activities. The government can as well implement this through private organizations such as Ethiopian and Addis Ababa Chambers of Commerce by providing financial support.
* **Targeting exports** To further augment exports, the government can set export targets for firms, not only for those identified above as exporting industries, but also any firm, in return for a favorable price and guaranteed sales/market domestically or any other incentive as discussed below, including subsidy.

1. **Input market**

Intervention in the input market encourages the development of firms/industries through enriching their linkage on the input side. The following interventions are relevant.

* Promoting **subcontracting** to encourage specialization and structural linkages between industries. For instance, auto assembly industries have no local content, despite the fact there are vehicle body manufacturing firms, battery assemblers, etc. There is a need to make a study in this connection and promote the activity.
* Providing **industrial infrastructure** to ease supply side constraints. The recent attempt to locate an industrial site with better infrastructural facilities for new investment is commendable. However, it is also important to provide infrastructural priorities for the already established firms such as energy and communication lines. It may as well involve support for relocation, to newly identified industrial sites, wherever it is initiated.

1. **Capital markets**

The critical role of capital/financial markets in promoting industrialization is well known. In this respect, apart from the general measures of **strengthening financial institutions, both private and public**, further effort would be required to cater the large financial resource that industrialization demands. In the Ethiopian context this may include establishing various financial institutions including the following.

* **Reorienting the functions** **of the Commercial Bank of** **Ethiopia** to provide the required finance for targeted/selected industries.
* **Establishing an industrial development fund**. This is not new for Ethiopia, as the Development Bank of Ethiopia has been providing a similar service to the industrial sector.
* Establishing **specialized funds** such as science and technology promotion fund, technical assistance fund, etc.
* Establishing and encouraging, long term **capital markets, venture capital companies, credit guarantee companies, and related specialized financial institutions.**

In line with this, the government can facilitate finance for targeted activities using different financial mechanisms.

* Targeted industries may benefit from direct credit from state owned banks or government guaranteed private, local or even foreign banks.
* Special credit scheme for selected industries and activities. Investments in targeted industries, such as strategic industries, have to benefit from special long term credit schemes, including credit subsidy, longer grace period, etc.
* Finance linked to specific performance criteria. Targeted performances, such as export, productivity improvement, adopting new technology, positive externalities, etc., could benefit from priorities in financial credit at favorable terms.
* Provision of matching grants. Large capital and technology requiring investments, targeted by the state, may benefit from matching grants.

1. **Technology market**

Promoting technology is the core strategy of an industrial policy. In the Ethiopian context, it is even critical. However, intervening in the technology market is also most challenging and expensive. Apart from the general provisions of technology infrastructure, such as meteorology, standards, quality and testing; the government should promote technology using diverse schemes as outlined below.

* The government should have a **mechanism to support all forms of foreign technology transfer to Ethiopia.** In other words, it should help firms locate, purchase, and adopt new foreign technology. It should provide technical advice and guidance in terms of identifying appropriate technologies in all industries. The choice of labor intensive type technology should be weighed against possible efficiency (hence competitiveness) trade-off, which could come with high-tech capital intensive technology types. Moreover, the rise in wages (including environmental issues) may necessitate, even in the medium term, moving out of labor to capital intensive type industries.

Direct support should be provided to strengthen targeted technology imports to reduce prices and strengthen the position of local buyers through different transfer agreements such as purchase of equipment by itself or with knowhow and technology assistance, contracts for blue prints and patents, hiring consultants, etc.

In this regard the government should compile a database on sources and prices of technology supply.

* **Special incentives to firms to develop indigenous own product** development capability through reverse engineering and adaptation.
* **Hiring of foreign experts to help industrial technology development**. The success of a vehicle body manufacturing enterprise here in Ethiopia by hiring an expatriate knowledgeable in the field is exemplary. The government should encourage employment of technology skilled expatriates through tax exemptions, remittances and other incentives.
* **Direct support for research at firm/industry level** no matter how preliminary it is. also **establishing and sponsoring basic R&D** on industrial related initiatives.
* **Engaging in joint venture** with foreign firms to acquire difficult and complex technologies.
* Supporting updating, automation, renovation and modernization of existing technology.
* **Technical support and extension services**. This is to overcome informational, technical, equipment, and other handicaps of industries. This would in turn enable industries to undertake consultancy and feasibility studies, product development and design, quality and productivity improvement and acquire modern marketing techniques. To implement this, a mechanism for diffusing new technologies, management techniques and skills to micro and small scale firms has to be installed.

The government should provide training, information, advice on automation, arranges visits to plants to identify technological problems, prepare trade fairs, etc. This requires a well organized center, which should be regularly involved in these activities.

The institutional demand to provide such support services is challenging. Though the currently existing institutions such as Science and Technology Institute, Micro Enterprises Development Institute, etc., could be restructured to provide the required services, various specialized additional institutes and centers in collaboration with the private sector and foreign technical assistance should be established.

1. **Skill market**

Building industrial technological capability is not just adopting advanced hardware technology, but also developing highly skilled labor. In fact the latter is a prerequisite.

Provision of formal higher education by itself may not be adequate, even if it is of high standard. Of course, basic and high standard educational background is essential. However, much emphasis should go for specialized technical skill training. In this regard much effort would be required, as creating a pool of skilled labor force by itself is today a prerequisite to attract foreign direct investment. Promotional measures may include the following:

* Expand and strengthen the **comprehensive or technical secondary education system** to create workers with basic technical skills.
* Provide more **specialized technical training on different categories of industrial technology.**
* Provide **special incentives for selected skills to reverse brain drain**. It is extremely important to provide due attention to higher education graduates in engineering technology and natural sciences.
* Give **pre-employment technical skill training** for school leavers.
* **Arrange customized courses for workers** based on the demand and tailored to the needs of industries.
* **Provide on the job training** on workplaces using actual work machines and equipment to directly enhance relevant skills in improving productivity, quality, product design, marketing etc. And also, directly support (financial or professional) firms/industries to provide on the job training.

To cater for this, specialized institutes and training centers are required, such as for instance, special industrial technology training institute. However, the institutional demand can as well be met by guiding and promoting private sector investment, which is currently deployed in less useful and quick profit earning training activities.

1. **Foreign direct investment**

Attracting FDI may be desirable, but admittedly, it is a difficult task. The requirement for FDI is not only economic. It demands, among other things existence of political stability and conducive economic environment. The latter implies good infrastructure, skilled labor, efficient economic governance, highly competitive and attractive incentives, etc. However, success in this field does not always come on the cheap when seen from the perspective of long term development and industrialization. It is not always the case that the interests of host countries and investors coincide. Particularly, while large investment in technologically leading strategic industries, whose benefit accrues in the longer term, is badly needed by developing countries, including Ethiopia, the preference of FDI is in quick and highly profitable natural resource-based industrial activities. So, there is a need to balance or reconcile diverging interests.

In the Ethiopian context, primarily, government has to provide the essential **infrastructure and institutional requirements for FDI**. Moreover, on top of the general facilitation of investors, guarantees and arbitration, government can employ the following promotional measures.

* Encourage **FDI in areas where domestic investment is weak**. When FDI moves into areas with relatively better comparative advantage, such as in resource-based industries, which can easily be managed by domestic investors, such advantages must be compensated by a parallel investment in strategic industries.
* Promote FDI in **export-activities**, particularly in non natural-resource-based industries.
* Provide **generous incentives for FDI with greater externalities in technology and skill transfer**, including design knowledge. In this regard, the government can give due priority and an all round support to proven foreign investors, such as the MIDROCK and sisterly groups so that they can move to high-tech strategic industries.
* Encourage **subcontracting and significant local content in all FDI operation.**
* Encourage existing foreign investments engaged in **simple assembly activities, such as in auto assembly, to move into manufacturing.**
* Encourage FDI in **joint venture** activity, particularly **in advanced technology oriented industries.**
* **Target and encourage lower-tier foreign companies**, particularly those from newly industrializing economies.
  + 1. **Incentive instruments**

It should be underlined that as the objective of industrial policy is not to maintain inefficient firms, **incentives have to be selective, goal specific, measured in magnitude, limited in time, and performance based**. Moreover, the incentive scheme should also be differentiated based on the importance of activities to be promoted. For instance, investing on a strategic industry, say chemical or metal casting, may be given higher priority than investing in footwear. Hence the incentive for the former should be more rewarding than the latter.

Apart from the specific incentives stated above under each market, the remaining instruments are quite diverse and commonly applicable in each market intervention. A number of instruments could be employed simultaneously or separately. For instance, a new investment in say strategic industries may receive subsidized credit as well as tax exemption for some time. The instruments include:

* Taxes (direct and indirect): tax exemption, tax holiday, tax credit, tax reduction/deduction;
* Accelerated depreciation;
* Finance: grants, direct credit, credit priority, low interest credit, long term credit, prolonged grace period;
* Foreign exchange priority;
* Priority in infrastructure provision;
* Import duty exemption or reduction, and subsidies;
* Free or favorable provision of land;
* Reduced electricity charges;
* Reduced domestic air cargo charges; and
* Employing government procurement to encourage new investment or expansion of selected/targeted products.
  + 1. **Measures of control**

As noted above, promoting industries with a package of rewards should necessarily be based on achievements which are specified, limited in time, and measured to outcome. As promotional programs involve costs and risks, firms are required to share at least some of the costs and risks commensurate with the benefits they receive. As the overarching objective of industrial policy is to develop an industrial sector which is productive and efficient, hence competitive, the benefit basically accrues to firms themselves. Hence sharing the costs and risks is not only logical but also inevitable as the alternative in today's competitive environment is to close down, i.e., go out of business eventually.

Control measures or performance requirements could be varied depending on the importance of the industry/commodity targeted for promotion. Requirements may include, among others, the following:

* **Level of productivity and efficiency**: An outstanding problem of most firms is low productivity and efficiency, which results in lack of competitiveness and loss of demand even in the domestic market. This is a challenge for nearly all firms. Therefore, targeted firms would be required to improve their efficiency significantly, if they have to be benefited from promotional incentives.
* **Product quality:** Irrespective of the price level, product quality is the primary prerequisite, particularly for export products. Exporting industries may be required to improve their quality to benefit from the incentive schemes.
* **Level of production:** Despite their productivity or efficiency levels, some industries producing critical products and currently of high import content, such as specific chemical industries, may be required to expand their capacity and volume of production first, and then move to meeting productivity and efficiency criteria.
* **Investment:** As noted above, Ethiopia's manufacturing sector is quite dwarf. A great deal of the industrialization program would only come through new investments, particularly in strategic industries. Therefore, new investments in targeted industries to benefit from generous support and incentives would be the major requirement.
* **Targeted level of export:** In newly industrializing economies, targeting export has been used as an effective mechanism for not only increasing export earnings, but also improving efficiency. In the Ethiopian context too, export targeting could be used as a prerequisite for benefiting a significant state support.
* **Introducing new technology:** Technology heavily influences levels of productivity and efficiency. It is likely that existing firms have to update their technology to improve their efficiency. Therefore, benefiting from the incentive package may require introducing new technology.

Again, at any time period, requirements could be: one or more depending on the importance of the industry. For instance, a firm may be required to increase its volume of production as well as export. On the other hand, a strategic firm may first be required to increase production to fill the gap in import shortage (foreign exchange saving) and may later be required to increase its productivity level.

**9.3.7** **Institutional requirement**

Industrialization requires a great deal of organizational, informational, skill and financial resources. A successful industrial policy demands the existence of such capability. As noted earlier, leading the industrialization program should be the prime responsibility of the government. The leading role of the government is not contestable as it is the only institution which has the prerogative to formulate and implement national policy. Moreover, no other institution has a nationwide structure and capability to undertake such a long term program. Perhaps the major challenge in this undertaking is the institutional demand. Primarily a central organ/office to coordinate and lead the program at the apex has to be in place. This office, as noted above, must be composed of all stakeholders, including the government, the private sector, labor organizations, civic society, etc, not only for the sake of transparency, but also for addressing the common interest of all stakeholders which is critical for the success of the program. It is this central organ which will establish the structure of the office and pool together the required human resource for designing, administering and implementing the program. The task of the latter is very challenging as it has to draw a coherent and detailed action plan and also organize various required institutions. Financial, technical/technological, educational, marketing institutions, investment promoting institutions and centers for intervention in different markets need to be established. Such institutions demand a large amount of resources, both financial (including foreign exchange) and human. The demand for both financial and human resources is challenging as it requires experts in varying fields, including engineers (chemical, electrical, mechanical, etc.), statisticians, industrial experts, management experts, economists, financial experts, marketing experts, etc., to design, administer, and monitor the program (i.e., to identify priorities, specify promotional measures and incentives, confirm performances, etc.). Establishing such institutions requires a priori study and as industrialization is a long and painstaking process, it is important that such institutions and staff be permanently assigned to maintain the sustainability of the program.

However, because of the challenge and complexity of industrial policy, some question the capability of governments to successfully undertake such a program. For instance, the World Bank argues that developing country governments are intrinsically unable to act in the national interest, for various reasons including lack of acquiring enough information to select better than the market, lack of skill to design and implement detailed and complex industrial policy, the tendency to gravitate towards sectional interest rather than national interest, corrupt practices, etc.

It is true that developing countries, including Ethiopia face some of these shortcomings and constraints. Hence, there is a need for a careful preparation to overcome such shortcomings. In the Ethiopian context, with respect to the information gap on markets, factor conditions, technology, skill requirements and organizational heeds, the experience of industrialized countries could serve as an initial source of information to make selective decisions. Second, the government can utilize its offices abroad, embassies, consulates, etc., as a source of information. In this connection, NGOs can also be viable sources as they have access to external information, outside Ethiopia. Third, private sector associations, such as the Chambers of Commerce, Ethiopian Manufacturing Industries Association and specialized trade associations (Leather tanning, coffee export, etc.) along with trade unions, and professional associations, are all valuable sources of information. Also, Ethiopian nationals living al1road could serve as reliable sources.

The lack of skill to design and implement such a complex program is a serious shortcoming. This can be mitigated initially by training staff and hiring skilled and experienced experts from countries which have undertaken an industrialization program. Moreover, experience, along with on the job training, is the best medium for acquiring further skills.

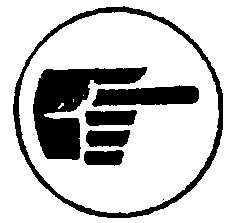
A major challenge also arises from sectional interest (as noted above in this section) and corrupt bureaucratic practices. While it is relatively easy to reduce rampant corruption at the lower tiers of the government through supervision and incentives- it is more difficult at higher levels. Today Ethiopia is not free from this problem. As noted above, this is the underlying reason for organizing a leadership entrusted with managing such a program composed of different stakeholders. The involvement of all stakeholders will discipline the state and make it accountable to the public, hence improving the quality and outcome of government interventions. Disciplined and competent bureaucracy to avoid rent seeking practices is a prerequisite. Certainly, a corrupt government should not be entrusted with undertaking detailed industrial policy. Transparency in the implementation of the program is one instrument to mitigate the potential abuse of such a program.

**9.3.8** **Integrating macro and sectoral policies with industrial policy framework**

What can be inferred from the discussions is that, industrial policy is essentially a development policy. What is perhaps unique is that, it places manufacturing at the center of the development program. However, because of its linkages to all sectors of the economy, it cannot stand on its own.

What this implies is that, sectoral as well as macro policies need to be consistent with the industrial policy in place. If for instance, agricultural policy, such as land policy, is not revised to allow massive agricultural inputs- fertilizers, insecticides, improved seeds, improved farm implements, then, the industrial policy which accords priority to industries producing agricultural inputs would be of no avail. Similarly, if macro policies, such as financial policy, are not tuned to support targeted industries, then the success of the industrialization program would be inevitably limited. If the energy policy does not provide priority to targeted industries, then the industrialization program would be adversely affected.

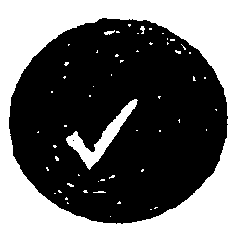
It is therefore, obvious that industrialization demands revising all relevant development policies and programs to be consistent to the industrial policy in place.

** Main Points:**

* ADLI
* Export Promotion
* Import substitution
* Industrialization
* Industrial Policy
* Intervention
* Merger
* Monopoly
* Patent
* Protection

🖏 **Chapter Summary:**

Industrialization is a key to development for a country. For this reason there should be a good industrial policy that is well designed and consistent with other policies like international trade policy. We can identify two general classes of industrial policy. Accelerative policies which aim to increase successful business experimentation. They include small business policy, industry-specific encouragement and promotion of new technologies. Decelerative policies aim at slowing ‘natural selection’ by preventing bankruptcy or encouraging alternatives such as rationalization.

 **Check List:**

**Dear distance learners!** Now it is time to check your level of understanding of the basic concepts discussed in the chapter.

Read each of the following questions and answer them by checking in one of the boxes under alternatives “Yes” or “Not”.

**“Yes” “Not”**

* Can you explain why small industries need protection?
* Can you explain the benefit of creating monopoly through

merger of firms?

* Can you explain why monopoly does not always earn

positive profit?

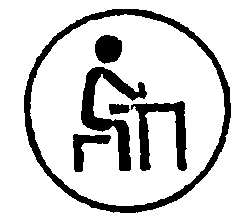
* Can you explain the main reasons that create and maintain

a monopoly?

* Can you explain why the marginal revenue of a monopolist is

different from price?

* Can you explain the need for industrialization?
* Can you justify the need for industrial policy?

**Self Test Review Questions:**

**Direction: Answer the following questions briefly**

1. Define industrialization. What is an industrial policy?
2. Explain what a policy maker has to take into considerations while framing an industrial policy?
3. Describe the basic elements of an industrial policy.
4. Differentiate between accelerative and decelerative industrial policies.
5. What is the rational for government intervention?
6. Explain the different approaches of intervention in any industrialization.
7. What are the main reasons that small industries need protection?
8. Explain the benefits of creating monopoly through merger of firms?

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# Assignment

**General Instructions:**

* **Try to attempt all the provided questions and problems precisely, and neatly.**
* **The assignment has a weight of 30%.**
* **You are expected to submit the assignment at the time of final examination.**
* **Failure to submit the assignment on the date of final exam will result in a zero mark.**

1. Critically discuss the cause and effect relationships among structure, conduct and performance in an industrial organization.
2. Compute Lenrer index when the firm charges price 275 and its marginal cost is 260, and based this Lerner index what is the degree of concentration?
3. What are the main and significant determinants of market concentration?
4. What is the Losch's Theory of Central Place Theory for industrial location analysis?
5. What are the implications of Diversification, Vertical Integration and Merger for public policies in developing economies' industries?
6. What makes informational advertising different from persuasive advertising; and critically evaluate the social costs of advertising?
7. How invention, innovation and diffusion improve the performance of a firm?
8. What are the roles of industrialization in economic development?
9. Briefly discuss industrial policy in the context of Ethiopia.
10. Explain what a policy maker has to take into consideration in framing an industrial policy.
11. Assume that a firm operating in a monopolistically competitive market has the following inverse demand and total cost functions respectively: **;** and

Where, P is price per unit, Q is quantity demanded, A is advertising expenditure, and TC is the total cost of the output; then:

1. Calculate the profit maximizing level of output, price, and advertising expenditure.
2. Calculate advertising elasticity of demand (𝜺𝑨) at the profit maximizing level of output.
3. Calculate price elasticity of demand (𝜺p) at the profit maximizing level of output.
4. Verify that the Lerner make-up index is equal to negative of the inverse of 𝜺p.
5. Compute the maximum profit level of the firm.