CHAPTER FIVE:
ANALYSIS OF FIRM STRUCTURE

Chapter objectives

- ***After reading this chapter you must be able to Understand;***
  - ✪ Organization, Structure, Ownership and control of Firm
  - ✪ Goal and Objective of Firm
  - ✪ Legal Forms of Business
  - ✪ Structure conduct performance
  - ✪ Measurement of Market Performance and Market Structure.

5.1. Overview

Different firms are in this world are established for different objectives, in different forms, in different organization, ownership, structure and management forms. We have different approaches in Industrial Economics analysis like Structure- conduct -performance and different measurement tools of the market structure and performance.

NB: Organization is the group of people with common goal and working together for achievement of the organization objective. Market structure refers to the pattern or manner in which the constituent parts of that body arranged together. 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.

5.1. Organization, Structure, Ownership & Control of firm

Define Organization of firm, Structure of firm, Ownership of firm & control of firm separetely

5.1.1 Organization of Firm

Define Organization of firm?

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 include 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

Define Structure of firm and determinants of Market structure?

By structure of any complex body we mean the pattern or form or manner in which the constituent parts of that body 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,
- ✰ 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.

i. **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.

ii. **The degree of buyer concentration**- this shows the number and size distribution of buyers for the commodities in the market.

iii. **The degree of product differentiation**- this shows the difference in the products of firms in the market. This indicates how sellers interact with buyers.

iv. **The condition of entry to the market**- this represents the relative case 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 the **absolute cost advantages** of existing firms.

5.1.3 Ownership and Control of Firms

Define Ownership and Control of Firm?

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.

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,

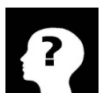
and to compare this potential with the extent to which new management could improve upon the situation. This would entail assessing not only current performance was in fact merely a prerequisite for better long-term performance e.g. as a result of entry costs, long-term research and development costs, 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. These types of consideration all 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.

NB: *Organization a coalition and there are some factors which determine the markets structure. 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 discretion.*

5.2. Goals and Objectives of Firms



What are the major goals and objectives of major 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.

i) **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.

ii) **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.

iii) **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.

iv) **Market Share goal** - This may be an alternative to the sales goal, particularly if market growth is important. 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.

v) **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, the profit 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.

a) 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.

b) As this implies, ***decision taking is sequential***. Performing different objectives at different times reduces substantially the perceived conflict between different objectives.

c) ***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.

d) 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.

Even though, all firms have no common goals and objectives, majority of them has five major goals. These are Production goal, Inventory goal, Sales goal, Market Share and goal Profit goal.

5.2.2 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?

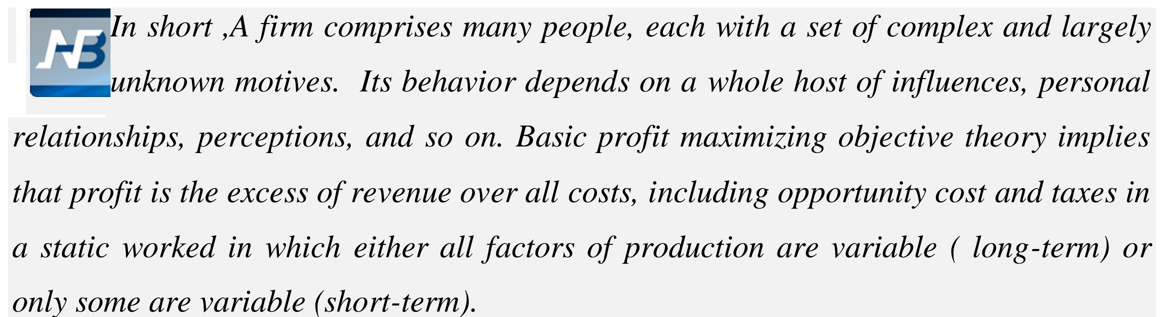
The last twenty years has seen a substantial amount of analysis based on the notion that firms should not be regarded as profit maximizes. To say that a firm is a profit-maximize is, strictly speaking, absurd. As we have noted, firms do not have motives: only people do. A firm comprises many people, 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 the appropriate integration of this overtime.

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



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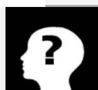
5.3 Legal Forms of Business



List and Discuss Major Legal Forms of Business?

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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. 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 etc. The pattern of ownership is commonly used to describe the type of organizational form for the firms. 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.

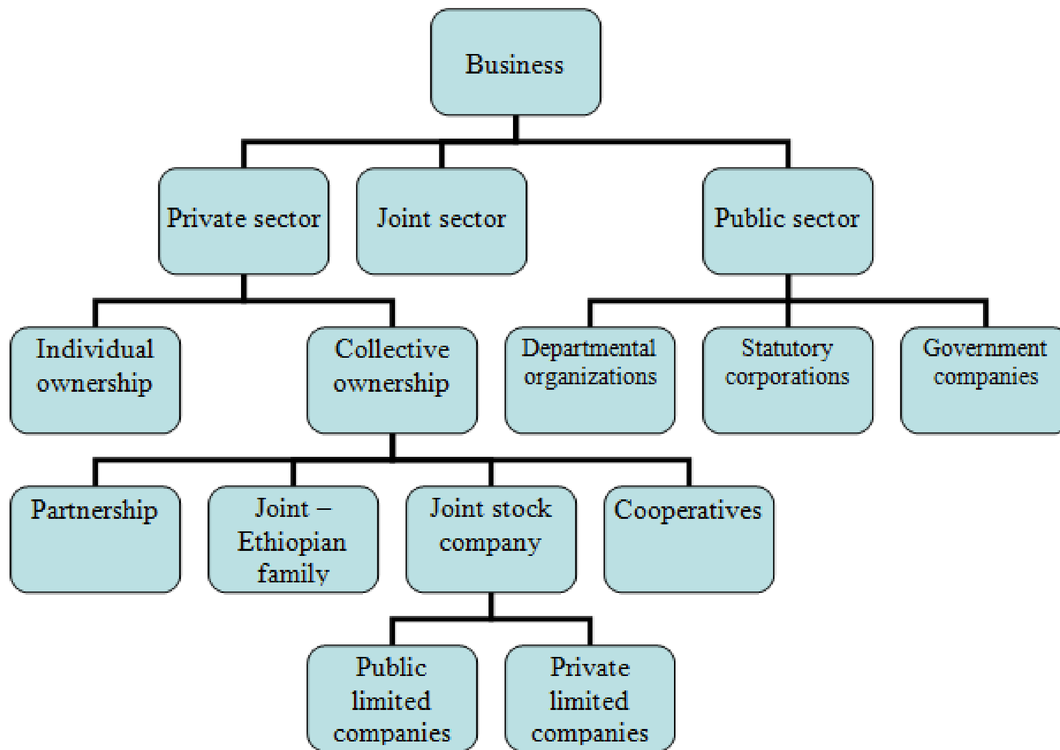


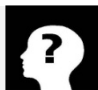
Figure 5.1: Different organizational forms of firms

All firms engaged in business can be first classified into three categories.

- ***a.*** private sector
- ***b.*** Public sector and
- ***c.*** 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.

5.3.2 Private Sector



What are private Forms of Business and how many types of private Forms of Business?

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There are four private forms of business ownership. These are;

1. Sole proprietorship

What is Sole proprietorship form of private business ownership?

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List down major advantages and disadvantages Sole proprietorship form of private business ownership?

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Sole proprietorship 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

- ***i)*** It is easy to establish
- ***ii)*** Incentive to earn more by exerting ones own effort.
- ***iii)*** Independence of control over business
- ***iv)*** Decision-making is very fast
- ***v)*** Secret of business can be maintained
- ***vi)*** Can bring efficiency because of direct contact to the owner
- ***vii)*** Flexible operation
- ***viii)*** Equal opportunity to everyone to use ones talents

Disadvantages of Sole Proprietorship

- ***i)*** There may be limitation both in resource mobilization and management.

ii) Sole proprietor liable for all kinds of risks (unlimited liability)

iii) The life of the firm is uncertain. After the death of the proprietor there is no guarantee whether the business will continue.

iv) 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.

2. Partnership

What is partnership form of private business ownership?

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List down major advantages and disadvantages corporation form of private business ownership?____
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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, other members help him. 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 an organization. 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 which 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;

- 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 main 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 retirement from the firm.

Note: 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.

3. Joint-stock company or corporation

What is corporation form of private business ownership?

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List down major advantages and disadvantages corporation form of private business ownership?____
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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.

(a) ***Legal Entity***: - A joint-stock company is created by low. 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.

(b) ***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.

(c) ***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.

(d) ***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.

(e) ***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.

(f) ***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.

(g) ***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.

(h) ***Statutory Regulations and Controls***:- The law regulates the company or corporation for the benefit of the public in general

(i) ***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 a ' private limited' company and as a "public limited" company. A Private limited company is one which by its Articles of Association

I. Restricts the right of the members to transfer shares.

II. Limits the number of members to fifty excluding past or present employees of the company and

III. 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 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.

The Advantages of the joint-stock company are:

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

The disadvantages of joint-stock company are:

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

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

4. **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.

In general, there are four forms of business ownerships. These are Cooperative

society, Joint-stock company or corporation, Partnership and Sole proprietorship. These all have their own advantage and dis-advantage.

1.3.3. Public Sector companies

Define Public Sector companies and give its examples?

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

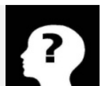
- To gain control of the commanding heights of the economy,
- To promote critical development in terms of social gains or strategic value rather than primarily on consideration of profits, and
- To provide commercial surplus with which to finance the economic development of the country. Some of the important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

a. ***Departmental organizations***- (like Post, Tele, Railways, Broadcasting, and Defense undertakings in the country).

b. ***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.

c. ***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.

5.3.4 *Joint-Sector* Public Sector Companies



Define Public Sector companies and give its examples?

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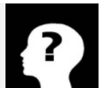
The concept of joint sector implies the participation of both the government and the private sector in the business. Under this organization, a firm is owned and run jointly by the government and a private entrepreneur. The public sector and the private one work together under the same roof and put a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

Public sector companies are which are owned jointly by private sector and government. For examples different privately owned vehicles which provide transportation services according to rules and regulation of the government.

5.4 Structure-conduct-performance

As you have learned in the first module, please review the structure-conduct-performance (SCP) paradigm for remembrance.



What is Structure-Conduct-Performance (SCP) Paradigm?

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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:

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

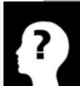
For many decades, economists have conducted structure-conduct-performance (SCP) studies that concentrate on the second question, which concerns the relationship between market performance and market structure. Market performance is the success of a market in producing benefits for consumers (for example, 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 likely hood 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.

SCP studies use for evidence on the relationship between performance and various characteristics of market structure to make inferences about market power, profitability, efficiency and effectiveness.

5.5 Measurement of Market Performance and Market structure


Briefly define market performance and market structure from SCP paragdism point of view?

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5.5.1 Measurement of Market Performance

How can one measures market performance?

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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 a cross firms that produce a variety of products a common denominator is necessary. One possible common denominator is costs. The Lerner index $\left(\frac{P-Mc}{p}\right)$, 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.

In short, there are four different measures have been used as a proxy 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.

I. 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 $\left(\frac{TR-TC}{TR}\right)$ 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 q/q yields $\frac{Pq-Acq}{pq}$. Because AC equals $\frac{Tc}{q}$, this is equal to $\frac{TR-TC}{TR}$ which is 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 if 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.

II. 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 or 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 stock holders' equity after tax to measure profitability. This is calculated as $\frac{\Pi - T}{E}$, where Π is a profit. T is the tax on profits, and E is stock holders equity's .This measure is attractive because it corresponds with what individual investors are trying to maximize. Also, competitive industries with the some 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 ratio 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 $\frac{\Pi - T + I}{A}$. Where Π and T are as defined above, 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 improperly 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 or return.

What do you think are the main differences between economic profits and accounting profits?

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 retune, 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 300 birr year to maintain the building. The 300 is depreciation, and the landlord's net annual rental is 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 (RPD). Like expenditures on plant and equipment, money spent on advertising or on Research & Development may create effects that last over time. A successful advertising comparing 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 accounting data arises from inflation. Researchers must be careful when comparing rates or returns 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 vale of assets.

III. **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, $\frac{P-M}{P}$.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

$$\frac{P-V-(P+g)(K/Q)}{P}=\frac{PQ-VQ}{PQ}-(P+g)\frac{K}{PQ}\text{...1}$$

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 lone-run average (and marginal) cost. This implies that the price-cost margin should on average equal the second term on the right 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 ration of assets to sales as one of the independent variables. Equation one 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.

IV. 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 that the difficult problem of estimation 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.

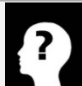
It is usually possible to get an accurate estimate for the market value of a firm's assets by summing the values of the securities that a firm has issued, such as stocks and bonds. It is much more difficult to obtain an estimate of the replacement costs of its assets, unless markets for used equipment exist. Moreover, expenditures on advertising and research and development 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 one. 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 e_m be the constant annual earnings of a monopoly and e_c 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 e_m to $e_{c.}$ For example, if q equals 2, earnings must fall by one-half before the firm is charging a competitive price.

There are four different measures have been used as a proxy 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.

5.5.2 Measures of Market structure



Dear learners, how do you measure market structure?

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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.

a. **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, profits of the industry and of the dominant firms increase with concentration ratio (CR_n), the share of sales produced by the n dominant firms. Unfortunately, therefore, 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 a particular modes of behavior exante- until 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 not concentrated.

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 have 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 not competitive industry 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 on 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.

b. 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 and barriers to entry are one the best measures of market structure. 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.

Chapter Summary

Two important aspects of industrial economics, the type and choice of the organizational form and alternative business motives of the firm – were examined in this chapter. Both these aspects are interlinked. The identification and determination of the business goal is the first step in the theory and practice of industrial economics. It is on the basis of the chosen goals; a firm will get the efficiency standard for itself and regulate its actions (i.e. policies) to achieve them.