CHAPTER - II

BARRIERS TO ENTRY – SOME THEORETICAL ISSUES

In the present chapter an attempt has been made to examine various theoretical issues and concerns relating to barriers to entry. The literature on monopolistic competition, initiated by Chamberlin (1935), says that "Competitive measures which did not truly measure efficiency should be eliminated; and, by implication at least, any other barrier to free entry except those inherent in differing personal qualities or ability to obtain capital should be removed". This is the first occurrence of the term "barrier to entry" in an academic article published in an economics journal. The first thorough study of barriers to entry was conducted by J. S. Bain.

Bain (1956) defined a barrier to entry as anything that allows incumbent firms to earn above-normal profits without the threat of entry. Bain argued that large scale economies are a barrier to entry, according to this definition. Stigler (1968) later rejected the basic notion that scale economies are a barrier to entry. He defined a barrier to entry as a cost that must be borne by a firm that seeks to enter an industry but is not borne by firms already in the industry. With equal access to technology, economies of scale are not a barrier to entry according to Stigler.

Capital requirements are not a barrier to entry either, according to Stigler, unless the incumbent never paid them, but they are barrier to entry according to Bain, for they seem to be positively correlated with high profits. With respect to scale economies and capital costs, the definitions of Bain and Stigler are at variance, which have resulted in controversy among economists and antitrust lawyers, both over the definition of a barrier to entry, and over the question of whether scale economies and capital costs each constitute a barrier to entry.
Barrier to Entry – Concept and Issues

Bain (1954) argued that large scale economies are a barrier to entry. Suppose a firm must add significantly to industry output in order to be efficient, and incumbent firms are committed to maintain their output levels in the event of entry, if a firm enters this market at less than the efficient scale, it enters at a significant cost disadvantage relative to incumbent firms. If the firm enters at or above the efficient scale, then the combined industry output would exceed industry demand causing the industry selling price to fall and dissipating all profits for the entrant. Therefore, firms in industries, where the efficient scale is large relative to the market, may be able to earn considerable profits without inducing entry.

Bain called this effect of scale economies on barriers to entry the "percentage effect," because it reflects the importance of the proportion of industry output supplied by a firm of efficient scale. He suggested that this is only one of two effects of scale economies on barriers to entry. Scale economies may be important to entry also because large absolute amounts of capital are required for efficiency. That is, absolute capital requirements may be so large that relatively few entrepreneurs could secure the required capital, or that entrants could secure it only at interest rates that placed them at an important cost disadvantage relative to incumbents.

In the process of defending his view that scale economies and capital requirements pose important barriers to entry, Bain formulated the first general definition of a barrier to entry, which he offered in the introductory chapter of his 1956 book, "Barriers to New Competition."

**Definition 1** (Bain, 1956): A barrier to entry is an advantage of established sellers in an industry over potential entrant sellers, which is reflected in the extent to which established sellers can persistently raise their prices above competitive levels without attracting new firms to enter the industry.
Prices would settle down to their competitive levels if new firms were free to enter the industry. At their competitive levels, prices are equal to marginal cost. According to Bain, a barrier to entry is anything that allows incumbents to raise prices above marginal cost, which usually entails above-normal profits, without inducing entry of new firms. Bain defines a barrier to entry in terms of its outcome, the extent to which incumbents price is above marginal cost or earn above-normal profits without inducing entry, which he called the "condition of entry." The definition is true by virtue of the meaning of the condition of entry.

Although not theoretically sound, this definition might have been fashioned for the purpose of identifying barriers to entry empirically. If the conditions of entry were observable, then Bain might have been able to identify the extent of barriers to entry across industries. However, Bain could find no immediate observable proxy for the condition of entry. So he simply measured, for a cross-section of twenty industries, the size and importance of the market characteristics that he believed to have an important effect on the condition of entry: economies of scale, capital requirements, absolute cost advantages, and differentiation advantages. These are explained as follows:

- **Economies of scale (e.g. Fixed Costs):** Bain argued that if the minimum efficient scale is a significant proportion of the industry demand, the market makes supra-normal profits without inviting entry.

- **Cost advantage of established firms:** The established firms may own superior production techniques, learned through experience (learning by doing) or through R&D (patented or innovations). They may have accumulated capital that reduces their cost of production. They may also have foreclosed the entrant's access to crucial inputs through contracts with suppliers.

- **Product differentiation advantages:** Incumbents patent product innovations (which of course, can be seen as a cost advantage relative to the product), or
they may corner the right niches in the product space and hence enjoy consumer loyalty.

- Absolute capital costs: A large capital requirement, in absolute terms, constitutes an entry barrier. Entrants, in this case have trouble financing their investments for two chief reasons: banks are less eager to lend to entrants who are less well known than incumbents and in case of entry, incumbents can inflict losses on entrants in the product market in order to reduce their ability to finance new investments.

Relative to other industries, Bain found that capital requirements were high in the steel and cigarette industries, and economies of scale were average in the steel industry, and low in the cigarette industry (Bain, 1956). Whether scale economies and capital requirements actually had an effect on the condition of entry in the cigarette, steel, and other industries, and hence whether they actually were barriers to entry, Bain answered only in theory. While admiring Bain's important empirical contributions, Nobel laureate George S. Stigler rejected Bain's basic contention that scale economies and capital requirements are barriers to entry, and developed a more useful definition to defend his point of view.

**Definition 2** (Stigler, 1968): A barrier to entry is a cost of producing (at some or every rate of output) which must be borne by firms which seek to enter an industry but is not borne by firms already in the industry.

Stigler's definition avoids tautology by identifying a barrier to entry in terms of its fundamental characteristics, emphasizing the differential costs between incumbents and entrants. However, the present tense "is" in the definition is cause for confusion. Suppose entrants have to bear a cost that incumbents do not have to bear today, but had to bear in the past (when they entered). Is this cost a barrier to entry? Perhaps Stigler meant to define a barrier to entry as a cost that entrants have to bear, but incumbents have not had to bear.
According to Stigler's definition, a barrier to entry exists only if the potential entrant's long-run costs after entry are greater than those of the incumbent. Stigler's definition is narrower than Bain's definition, that is, some things are barriers to entry according to Bain, and not according to Stigler; but nothing is a barrier to entry according to Stigler, and not according to Bain. In any given industry, entrants and incumbents enjoy the same scale economies as they expand their output. With equal access to technology, economies of scale are not barriers to entry according to Stigler; but they are barrier to entry according to Bain (via their percentage effects). Absolute capital requirements are not a barrier to entry either, according to Stigler, unless the incumbent never paid them; but they are barrier to entry according to Bain, for they seem to be positively correlated with high profits.

The spirit of Bain's definition did not fade after Stigler proposed an alternative definition. Ferguson (1974), who was mainly concerned with the question of whether advertising is a barrier to entry, proposed a definition that follows Bain's, but with the additional requirement that incumbents earn monopoly profits.

**Definition 3** (Ferguson, 1974): A barrier to entry is a factor that makes entry unprofitable while permitting established firms to set prices above marginal cost, and to persistently earn monopoly return.

Ferguson pointed out that pricing above marginal cost in the long run is not sufficient for incumbent firms to persistently earn above-normal profits. Incumbents only earn above-normal profits if prices exceed average cost. Prices may not exceed average cost even though they exceed marginal cost because of price or non-price competition among existing firms.

For example, existing firms might compete through advertising. Then potential entrants might be required to pay large fixed advertising costs to enter the industry. However, incumbents also pay these fixed advertising costs to compete in the industry. These costs increase the average cost curves of incumbents, as well as
entrants (without affecting their marginal cost curves). As long as they are not a source of scale economies, even if they allow incumbents to set prices above marginal cost, they are not a barrier to entry according to Ferguson's definition, because they increase incumbents' average cost, thereby dissipating their above-normal profits, and hence reducing the incentives of potential entrants to enter the industry. In contrast, they are a barrier to entry according to Bain simply because they allow incumbents to price above marginal cost without inducing entry.

Fisher (1979) proposed another definition, which is in the spirit of Bain's and Ferguson's definition, but is normative rather than positive.

**Definition 4** (Fisher, 1979): A barrier to entry is anything that prevents entry when entry is socially beneficial. According to Fisher, a barrier to entry exists if incumbents earn profits that are unnecessarily high, in the sense that society would be better off if they were competed away, but firms do not enter to do this. To determine whether a potential barrier to entry causes profits to be unnecessarily high, Fisher asks whether potential entrants make a calculation that is different from the one that society would want them to make in order to decide whether to enter a market, given this barrier to entry.

Consider, for example, an industry that firms can only enter if they make a large capital expenditure. A firm will not enter if the profits that it anticipates in the long run will not be sufficient to justify the initial capital requirement. But this is exactly the calculation that society would want the potential entrant to make. The capital expenditure would be socially wasteful if it did not guarantee a rate of return that exceeded the rate of return that it could earn if it were invested elsewhere. Therefore, according to Fisher's definition, an initial capital requirement, no matter how large, is not a barrier to entry. It is not a barrier to entry according to Stigler's definition either, but only because incumbents and entrants both had to pay it in the same amount, which is an entirely different reason.
Von Weizsacker (1980) proposed a second normative definition, which is based on Stigler rather than Bain's definition, in that it focuses on the differential costs between incumbents and entrants, rather than on the profits of incumbents.

**Definition 5** (Von Weizsacker, 1980): A barrier to entry is a cost of producing that must be borne by a firm which seeks to enter an industry but is not borne by firms already in the industry and that implies a distortion in the allocation of resources from the social point of view.

Von Weizsacker argues that a cost differential is a barrier to entry only if it results in a decrease in welfare. His point is that the number of firms in a Cournot industry can be greater than the socially optimal number of firms. To prove his point, he develops a model of an industry with economies of scale, and shows that the number of active firms in the Cournot equilibrium with free entry, defined as the largest number of firms such that the Cournot equilibrium is still profitable, exceeds the number of active firms that would maximize social surplus, defined as the sum of consumer surplus and market profit at the level of total industry output that arises when all firms set price equal to marginal cost. In this model, economies of scale are not a sufficient barrier to entry. Welfare would increase if the number of firms were limited to less than the free entry number. The cost savings that arise with fewer firms from taking advantage of economies of scale more than compensate for the reduction in total output from having fewer firms. In such an industry, additional barriers to entry could enhance welfare, by reducing the number of firms to their socially optimal level. However, industries where, the number of firms is greater than the socially optimal number of firms are generally difficult to identify.

The definitions of Stigler and von Weizsacker focus on the cost disadvantages of entrants relative to incumbents. Gilbert (1989) argues that such definitions are unnecessarily confining, and proposes a new definition that focuses on the advantages of incumbents rather than the disadvantages of entrants.
Definition 6 (Gilbert, 1989): An entry barrier is a rent that is derived from incumbency.

According to Gilbert, a barrier to entry is the additional profit that a firm can earn as a sole consequence of being established in the industry. An incumbent may be able to earn profit and exclude entry not only because of cost advantages over entrants. Suppose the incumbent can commit itself to producing the monopoly output, and this being the case, no other firm can enter at a profit. Then entry is excluded in this market even though the incumbent has no cost advantage over a new entrant, since both had to pay the sunk costs. Sunk costs are a barrier to exit for the incumbent, which allows it to commit to a level of output, which in turn deters entry, earning the incumbent a rent. Thus, exit barriers for incumbents create entry barriers for entrants.

In this case, Bain's assumption that entrants expect incumbents to maintain their pre-entry output levels even after entry has occurred is valid. Moreover, incumbents can use strategic behavior to exploit sunk costs to their advantage. Sunk costs increase the entrant's loss in the event that entry fails, which makes the incumbent's threats of strategic entry deterrence more effective. Thus, exit barriers for entrants create entry barriers for entrants. In these ways, sunk costs provide a rent to incumbents, and hence are a barrier to entry according to Gilbert's definition. The legal restriction that drivers must buy an official medallion from city authorities before supplying taxi services may be a barrier to entry according to Gilbert's definition for the same reason, while it is not a barrier to entry according to the definitions of Bain, Stigler, Ferguson, Fisher, or von Weizsacker.

Disagreement over the definition of a barrier to entry has persisted. Carlton and Perloff (1994) propose a literal definition of a barrier to entry.

Definition 7 (Carlton and Perloff, 1994): A barrier to entry is anything that prevents an entrepreneur from instantaneously creating a new firm in a market. A long-run
barrier to entry is a cost that must be incurred by a new entrant that incumbents do not (or have not had to) bear.

The authors argue that the first definition is rarely useful in practice, for it implies that any capital requirement is a barrier to entry and that any industry in which entry takes time has a barrier to entry. They note that the term "barrier to entry" is often used to refer to both costs of entering and the time required to enter. However, to our knowledge, they are the first to propose a definition that explicitly includes a time dimension. Unfortunately, they avoid the timing issue thereafter by considering only barriers to entry in the long run. Entry erodes profits in the long run. Therefore, if a firm earns profits in the long run, the industry must have long run barriers to entry. The authors argue that a firm can only earn profits in the long run if they have an advantage over potential entrants, which leads them to adopt a modern version of Stigler's definition. Notice that their version clears up the confusion about the present tense "is" in Stigler's original definition.

Church and Ware (1999) distinguish between structural and strategic barriers to entry, reserving the term "barrier to entry" only for the former.

**Definition 8** (Church and Ware, 1999): An entry barrier is a structural characteristic of a market that protects the market power of incumbents by making entry unprofitable.

Most definitions before this one were implicitly intended to apply mainly to structural market characteristics anyway. We have seen that the concept of a barrier to entry has a rich heritage in economics. Now we discuss the nature of the barriers to entry posed by scale economies and capital requirements.

**Scale Economies:**

With access to credit, an entrant could easily build a plant of minimum efficient scale. The problem is that incumbents have already built plants of minimum efficient scale.
If the added output of the entrant's plant of minimum efficient scale is large relative to industry demand and existing output, the product price would fall below the entrant's per unit cost, so that entry would be unprofitable.

However, this argument assumes that the new firm expects the incumbent to maintain its pre-entry output level even after entry has occurred. Once the new firm has entered, the incumbent may want to reduce its output from its pre-entry level, to prevent its profits from falling to zero. But then the entrant's profits might also be prevented from falling to zero, so that entry might be ex ante profitable. However, this requires some buyers to switch from the incumbent firm to the new entrant. Switching from an IBM computer system to that of a new rival may cause the business buyer to incur added costs for new software or for employee retraining. If such switching costs are high, then entry will not be profitable.

On the other hand, the new firm could enter and slightly undercut the incumbent's price. It would then get all of market demand, and entry would be profitable, provided the new firm can induce all consumers to switch to buying its product by setting a slightly lower price. Consumers may be loyal to existing brands, and for good reason. Rational consumers who have had experience with the existing brand may decide not even to try a new brand introduced at the same price and of equal ex ante attractiveness, for once the brand has been used, continuing to buy it involves less risk than trying the new brand. In order to offset brand loyalty, a new firm would have to offer a considerable price discount to lure consumers away. But at this discount, entry might no longer be profitable.

Therefore, scale economies are barriers to entry that reinforce other barriers to entry, such as customer switching costs and brand loyalty. Whether scale economies are barriers to entry depends on whether switching costs and brand loyalty are barriers to entry. The switching costs borne by entrants today are usually comparable to those that were borne by incumbents back when they entered the market, unless these
incumbents were the pioneers. Thus, customer-switching costs are not usually economic barriers to entry.

On the other hand, brand loyalty seems to confer a definite advantage to an incumbent over potential entrants. However, this advantage may have been costly for the incumbent to acquire, or it may be relatively easy for potential entrants to overcome. Brand loyalty is a barrier to entry only if it provides the incumbent with an advantage that is more expensive for potential entrants to overcome than it was for the incumbent to acquire. This test is more stringent. Consumers may view purchases of contraceptive pills as particularly risky, so that brand loyalty in contraceptive pills may be particularly difficult for entrants to overcome; but firms' expenditures on advertising may also have to be particularly large in order to acquire brand loyalty in the market for contraceptive pills, so that on the whole brand loyalty in this market may not be an economic barrier to entry.

**Capital Costs:**

The necessity for firms to be large relative to the market in order to attain productive efficiency reinforces barriers to entry such as brand loyalty and customer switching costs. This is the percentage effect of scale economies on barriers to entry. Scale economies may also affect entry because the absolute amount of capital required for efficiency may be so large that relatively few entrepreneurs could secure the required capital, or that entrants could secure it only at interest rates that placed them at an important cost disadvantage relative to incumbents.

However, many firms are capable of paying large capital costs, if the entry is worthwhile. Raising money for large projects is not necessarily more difficult than raising money for small projects. If capital markets work properly, raising capital should be no more difficult for a profitable large-scale project than for a profitable small-scale project. Profitable projects should attract many investors.
If capital markets do not work properly, prospective entrants may not be able to pay the large capital costs associated with entry even if entry is worthwhile, but incumbents may not be able to pay the large costs associated with replacing existing, depreciated capital either. Capital market imperfections favor wealthier and more experienced firms over entrepreneurs without track records, but the former are not necessarily the incumbents. Some entrants are large, diversified firms that build new plants in a new industry. Microsoft entering the internet browser business, and Sony entering the videogame business, are instances where the entrant was larger than the largest incumbent. In industries where the principle, potential entrants are large diversified firms, large capital costs may be an economic entry booster rather than barrier.

Nevertheless, large capital requirements can indirectly discourage entry. Instead of being barriers to entry in their own right, capital requirements often reinforce other barriers to entry, by making the risks larger. Thus, when a solid reputation is necessary to enter an industry, large costs make it difficult or impossible to test the market; instead, the entrant must commit large resources to enter. If large sunk costs are associated with entry and entry is unsuccessful, the entrant's losses are large. In such a setting, the threat of aggressive behavior by the incumbent may deter entry. The greater the potential loss, the more potent is the threat of aggressive behavior. By magnifying risks, capital requirements reinforce other barriers to entry.

**Barriers to Entry – Key Factors**

Studies on barriers to entry have identified variables that capture factors inducing and deterring entry. Bain's (1956) influential work identified product differentiation, economies of scale and absolute cost advantages as key barriers to entry. Subsequent studies in the industrial organization literature referred to these as barriers to entry and tried to identify variables, which capture these barriers. Largely built on the modified Structure-Conduct-Performance (S-C-P) framework wherein feedback loops (e.g., from conduct (strategy) to structure) are recognized, these studies identify a variety of industry characteristics that may influence entry into an industry. In the same tradition,
the entry model developed here presumes that entry of firms is determined by certain industry characteristics. The model to explore determinants of entry builds on the broad factors identified by studies using the S-C-P framework. To facilitate discussion, the explanatory variables have been categorized into three groups: Structure, Conduct and Performance related factors. It is recognized, however, that a watertight compartmentalization of these factors is inappropriate and hence these three categories are often porous. In the process of discussing these factors to build an explanatory model, we also review some key empirical studies on the barriers to entry.

**Structural Characteristics**

A variety of structural variables have been identified in the literature that can act as barriers to entry. In what follows we briefly discuss them.

**Herfindahl Concentration Index (CR):** Number of firms operating in an industry and the distribution of market shares among them reflect one of the key structural characteristics of the industry. In perfectly competitive markets, larger number of operating firms along with certain other conditions provide business opportunity and make entry easy for other entrants. To generalize, the higher the concentration in an industry, the greater the possibility that post entry retaliatory actions and collusion may deter entrants. The inherent change in the nature/degree of the competition post entry influences the entry decisions. The possibility also exists in a concentrated industry, of mergers or acquisitions as modes of entry resulting into enhancement of concentration. Entry by large firms and MNCs has been characteristic of creation of such market conditions.

Empirically, the impact of industry concentration on entry has varied across studies and no consistent pattern seems to emerge (Acs and Audretch, 1989, Geroski, 1995). A few studies, however, have found that *ceteris paribus*, high industry concentration deters entry into the industry (see, for example Orr, 1974; Khemani and Shapiro, 1986; and Saikia, 1997). Industry concentration in this study is measured by the Herfindahl Index (H-Index), which is measured as:
\[ H-\text{Index} = \sum (\text{Market Share})^2, \text{ where market share} = \frac{\text{Firm Sales}}{\text{Total Industry Sales}}; \]
\[ \text{and } N= \text{number of firms in the industry}. \]

**Minimum Efficient Scale (MES):** The fixed cost component in production varies from industry to industry. With high fixed costs, the scale of operation required to operate efficiently increases in order to cover the fixed costs and to keep average costs low. Existing firms operating at the efficient scale can erect barriers for entrants because of cost disadvantages of operating at scales below the efficient scale. Firms operating at scales below the efficient scale are at a cost disadvantage compared to those operating at the efficient scale. Given the size of the market and its growth, higher the level of MES, higher is the likelihood that the new entrant may have to operate at a sub-optimal scale. This may restrict entry.

Gorecki (1975), Kessides (1986) and Saikia (1997) explored the role of MES in determining entry but did not find it to be a significant deterrent. Acs and Audretch (1989) have found that high concentration adversely affects entry by small firms. In our study we will be using average scale of operation as a structural variable reflecting barriers created by economies of scale and it will be measured as:

\[ \text{MES} = \log \left[ \sum \left( \frac{\text{Firm Sales}}{N} \right) \right], \text{ Where } N= \text{No. of firms in the industry} \]

**Industry Size (SIZE):** A larger industry size provides scope for larger number of players. Given MES, larger the size of the industry, better the scope for more players to enter and operate at an optimal scale and even for existing players to expand and diversify. Both Orr (1974) and Saikia (1997) have found industry size to have a positive influence on entry. In this study, size of the industry is used to measure the scope for entry. It is measured as:

\[ \text{Size} = \log (\text{Industry Sales}) \]

**Capital Intensity (CI):** The scale to operate efficiently varies from industry to industry subject to the fixed cost components. Hence, given the capital requirements in
an industry to build a plant of efficient scale, the decision to enter raises exogenous sunk costs related barriers to entry. The capital requirement to build up a plant of efficient scale varies from industry to industry, as do MES. Hence, the exogenous sunk cost component as a barrier to entry also varies across industries. Moreover, capital market imperfections may lead to discrimination in terms of lending rates or sometimes, non-availability of capital for small players. Besides, discrimination by offering preferential rates to large established players in capital intensive industry can also act as barrier to entry for small new firms, as a higher rate of cost of capital will increase their overall cost making them less competitive.

While the study by Orr (1974), Khemani and Shapiro (1986) and Duetsch (1984) found capital requirements to be an important barrier to entry, Highfield and Smiley (1987) and Saikia (1997) did not find the associated sunk costs to be a significant determinant of entry. Capital intensity of the industry represents barriers related to capital requirements, availability, lending rates and sunk costs. It is measured as:

\[ \text{Capital Intensity} = \frac{\text{Capital Employed in the Industry}}{\text{Industry Sales}} \]

**Vertical Integration (VI):** Forward and backward integration in industries may be an outcome of strategic responses of firms operating in the industry or may be naturally built up as part of industry structure. Firms, who strategically develop backward and forward linkages, reap cost efficiencies by internalizing ensuing positive externalities. At an entry stage, with not so developed forward and backward linkages, new entrants face barriers arising out of cost inefficiencies in case of entering vertically integrated industries. Moreover, if the entrants wish to enter as a vertically integrated entity, the costs of entry go up. *Empirical studies on determinants to entry have not explored the role of vertical integration.* Barriers arising from such backward and forward integration will be captured in this model by a measure of vertical integration:

\[ \text{Vertical Integration} = \frac{\text{Industry Gross Value Added}}{\text{Industry Sales}} \]
**Conduct Characteristics**

Behavior of firms may be an outcome of strategic responses or may be a natural response to certain characteristics of the industry. In general, it is well recognized now that firms strategically behave to change "structural" characteristics of the industry in order to deter entry (Geroski, Gilbert and Jacquemin, 1990 provide a review).

**Product Differentiation and Intangible Assets:** Product differentiation not only gives some flexibility for firms in charging a price premium, but also functions as a source of entry barrier. This is so because there may be costs related to switching brands. In such a case, products, which are identical *ex ante*, may be viewed as imperfect substitutes once the consumer has chosen a particular brand. Thus, a new entrant might have to incur additional costs in convincing the consumers to switch brands.

As mentioned, Bain (1956) observed that product differentiation was a very important determinant of the ability of firms to earn supernormal profits. His empirical investigations showed that the following factors contributed to product differentiation related barriers in twenty industries: customer inertia; habit and loyalty; advertising-induced brand allegiance and product reputation. The degree of product differentiation in a market is measured by the cross elasticities of demand and supply, which exist among competing products. Although advertising is only one source of product differentiation, it is important for certain consumer goods industries. In these industries, new entrants generally are forced to sell at a price lower than that of the incumbent's branded products. The unbranded products of a new entrant and the branded products of the existing player may not be having any "real" difference between them but the new player is often forced to sell its product at prices below that of the established products or else face heavy selling costs. Advantages emanating from brand names, managerial skills, distribution networks, product patents are referred to as intangible assets advantage. This study has made an effort to capture product differentiation and intangible assets related factors that may influence entry decisions. In what follows, the details of these factors are discussed. Data
requirements for the computation of cross-elasticity are very high. Consequently, most studies use advertising intensity as a measure of product differentiation (Orr, 1974; Gorecki, 1975; Kessides, 1986, Khemani and Shapiro, 1986; Duetsch, 1984, Highfield and Smiley, 1987 and Saikia, 1997). We use this along with a few other variables like marketing and distribution investments as other sources of product differentiation.

**Advertising Intensity (AI):** Following Kessides (1986), product differentiation via advertising can deter entry in three ways. First, high levels of advertising create additional (partly sunk) costs for new entrants as it requires brand switching to break in buyer inertia and buyer loyalty as compared to repeat buying. Secondly, the effect of advertising on firm revenues (and therefore profits) may be subject to economies of scale, which results from the increasing effectiveness of advertising per unit of output sold and decreasing costs for each advertising exposure. Thirdly, advertising requires funds and since the returns are in the form of intangible assets formation, the certainty of returns is low. But while these processes may deter entry, advertising intensive industries also provide opportunities for potential entrants to make a dent in the market through advertising that provides *information* about the new entrants and is able to *persuade* consumers to switch to a new producer. Advertising intensity captures the effect of all these processes and provides a proxy for the importance of intangible assets in building up a brand name and the extent of product differentiation in the market. The higher the level of advertising, higher is the expected differentiation in the market, which may act as a barrier to entry. It is measured as:

\[
\text{Advertising Intensity} = \frac{\text{Industry Advertising Expenditure}}{\text{Industry Sales}}
\]

**Distribution and Marketing Intensity (DMI):** Local market links and market penetration are significantly dependent on the quality of a firm's distribution network. Investment in building up distribution networks is a major activity in markets for FMCG products. Existing firms having good distribution network enjoy cost advantage in the channels. Activities like after sales service, promotion and consumer relationship management help in building up intangible assets in the form of brand image and brand loyalty. Products introduced in the market by a new player have to
not only build the brand image, but also break the 'customer inertia' in order to gain market share. This process is usually a time consuming one and the incumbents have the first mover advantage, which they can build on by attracting consumers through brand extensions in related products. Hence barriers created by such intangible assets help existing players reap supernormal profits while deterring entry. Existing studies have not explored the role of this source of "product differentiation" and "sunk costs". In our study it is measured as:

\[ DMI = \frac{Industry\ Distribution\ and\ Marketing\ Expenditure}{Industry\ Sales} \]

**Export Orientation (EI):** In order to sustain economies of scale, firms may cater to export markets at competitive prices when the industry size in the domestic market is not able to sustain the size of the operation. A firm having a good network abroad, may enter an industry, which is highly concentrated and having high economies of scale by operating across markets, which may not be a possibility for a purely domestic operator as large scales of operation are not supported by internal demand. On the other hand, the opening up of an industry through trade liberalization and an increase in the size of the industry, may help small domestic players to take a piece of the pie which otherwise was not possible. In short, the basic idea is that export markets may provide opportunities for domestic players to operate in certain industries and achieve optimal scales where domestic demand constrains them from doing so. But the underlying assumption is that their quality of products is good and they have access to good network abroad to market the products. So in a sense on one hand better opportunities may induce entry, but delivering the product quality at the international standards and network to market the products on the other hand may act as a barrier. The role of export orientation of an industry on entry in that industry has not been analyzed and we are exploring the relationship for the first time. It is measured as:

\[ EI = \frac{Industry\ Exports}{Industry\ Sales} \]

It may be argued that the links between certain structural factors and conduct factors can exacerbate the entry barriers created by the former. For instance, building up
brands, promotional and marketing activities, building distribution networks, all lead to development of intangible assets, which an incumbent can play to its strength and raise barriers for the entrants. Inherent in all these is capital expenditure and that is where it gets linked with the capital market imperfections and the structural characteristics. Consequently, due to the factors listed above, raising capital for an advertising campaign or building distribution channels, is likely to be difficult or costlier for an entrant. Consequently, high advertising intensity, distribution and marketing intensity are also likely to exacerbate capital market imperfections.

Performance Characteristics

The potential of making profits, experiencing growth and a variety of other "performance" characteristics of an industry may influence the decision to enter an industry.

Risks and Returns: Entry as such can be viewed as an investment (capital) decision. With various investment options available to an investor, it is the opportunity costs which one needs to analyze while taking the decision. Operationalisation of this idea requires the analysis of risks involved and the returns associated with various investment options. Using this risk-return perspective, we describe below some variables, which are used to capture the 'opportunity costs' of entry across industries. The role of risk has also been explored in some earlier studies (See Orr, 1974 and Saikia, 1997). In general, entry is found to be slow to react to high profits (Geroski, 1995).

Return on Capital Employed (ROCE): The decision to enter an industry is expected to be influenced by the performance of the industry. It is expected that industry with high returns will attract more entrants as compared to industries with low returns (Orr, 1974, Khemani and Shapiro, 1986; Deustch, 1984; Higfield and Smiley, 1987; Kessides, 1986, Saikia, 1997). This is true for new players and also for existing players who plan to diversify or expand (Gorecki, 1975). Lagged profits are used to proxy expected profits post entry. Different strategies are adopted by the existing
players to increase their hold of the market - they introduce new products, expand capacity and supply of existing products, and bring in new technology. The underlying objective may be to exploit the opportunities available in a profitable industry. Returns as an indicator of performance will be captured in this study by introducing ROCE as an explanatory variable and it is measured as:

\[
ROCE = \frac{PBIT}{\text{Capital Employed}} \quad (\text{both calculated at industry level})
\]

**Risk:** In general, higher risk is likely to reduce the likelihood of entry taking place unless the potential entrant is risk prone. Conventionally, studies have measured risk as variability in industry performance over time; high variability implying higher risk involved. Variations in the industry profitability over time capture, on an average, the operating risk (Industry Risk) for that industry. Industry risk has been considered by earlier studies (see studies quoted above). It will be measured as:

\[
\text{Industry Risk (IR) = Standard Deviation (Industry ROCCE) over the last five years with a lag of one year}
\]

**Growth:** A growing industry creates more opportunity for existing players who plan to expand as well as for new players who plan to start their business. Gorecki (1975) found that industry growth has a positive influence on new as well as "diversifying entry". Khemani and Shapiro (1986), Deutsch (1984), Highfield and Smiley (1987) and Saikia (1997) also found that growth induces entry. In this study we measure it as:

\[
\text{Sales}_t = \text{Sales}_0 (1 + g)^t \quad \text{Where 'g' is the growth rate, regressed over a period of five years with a one year lag in the starting year.}
\]

Broadly, most studies have been able to capture the structural aspects of the industry by using variables like minimum efficient scale, capital intensity and size of the industry. But none of the studies have explained the role of vertical integration in an industry. From the perspective of conduct features, most of the studies have captured the effect of product differentiation related barriers by including variables like advertising intensity of the industry. However, such barriers may include assets like
distribution networks, marketing skills and reach. Moreover, from the point of view of analyzing entry as an investment decision, the need is to adequately capture opportunity costs. To an extent, these are reflected better by returns and risks on the capital employed. Although a couple of studies have tried to capture these factors through various measures of risk and profit rates, some measurement issues remain. Risk has been looked from the industry perspective as variations in its performance (profitability) over time. Besides certain variables capturing policy shifts and its implications needs to be captured, for instance export orientation especially in context of India 1991. Present study tries to fill these gaps.